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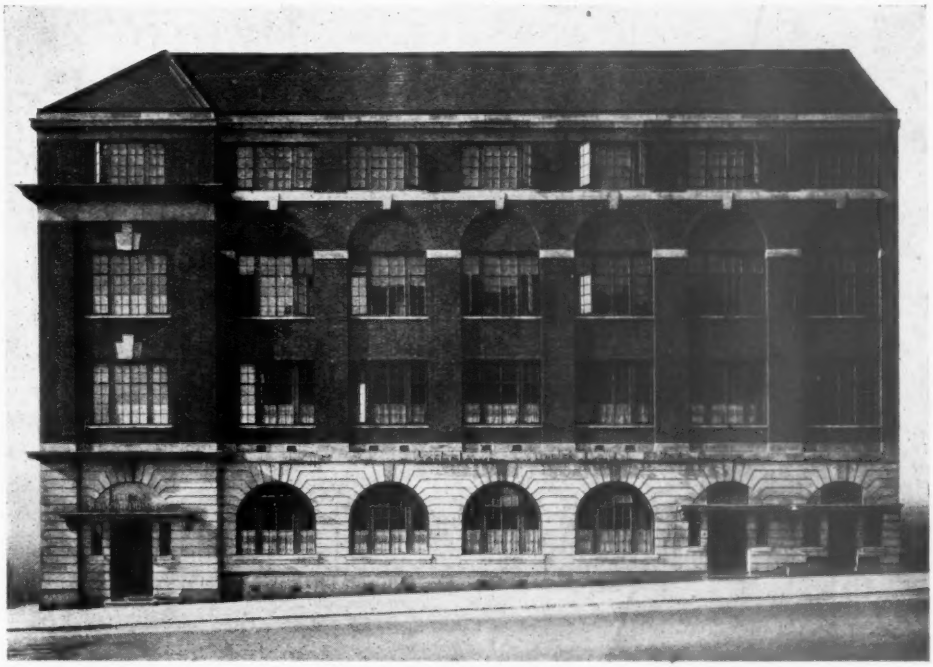

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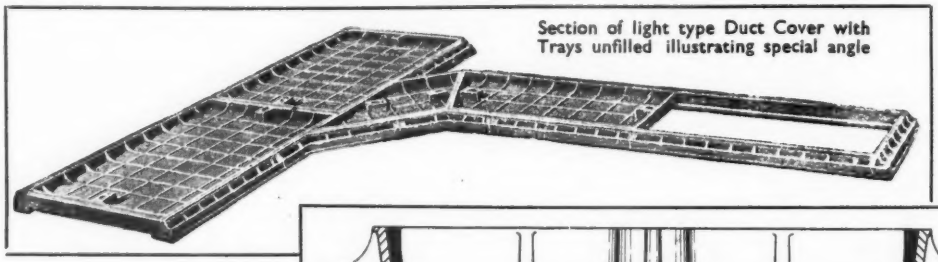

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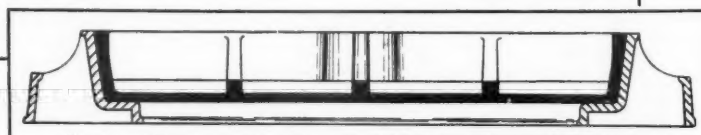

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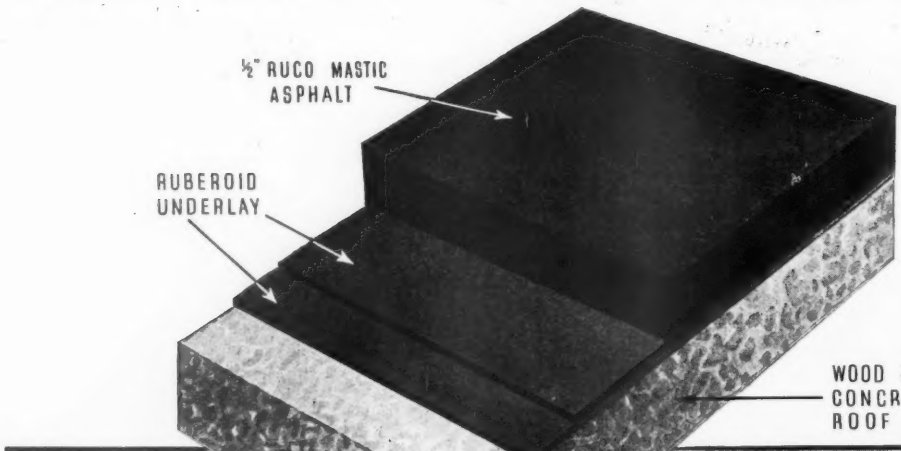

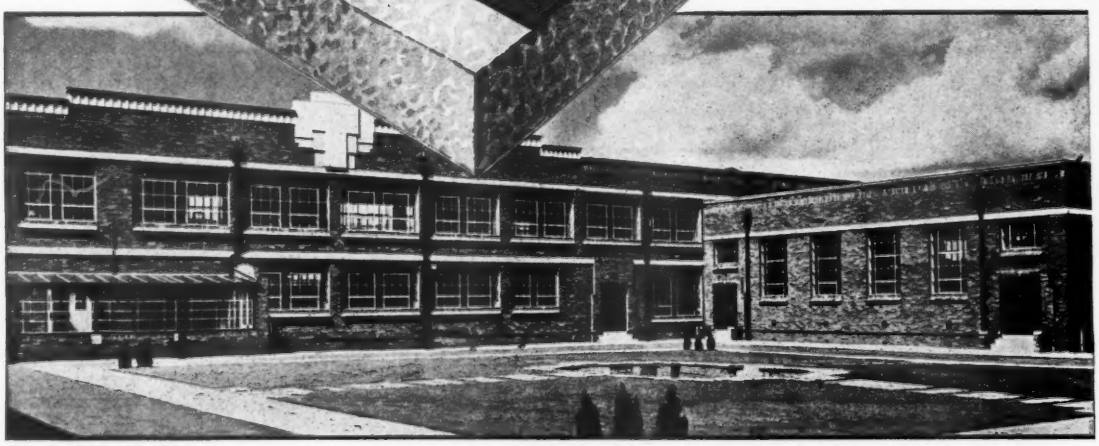

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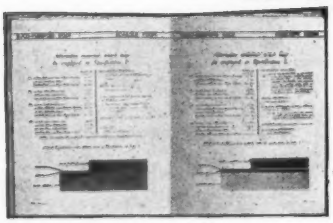

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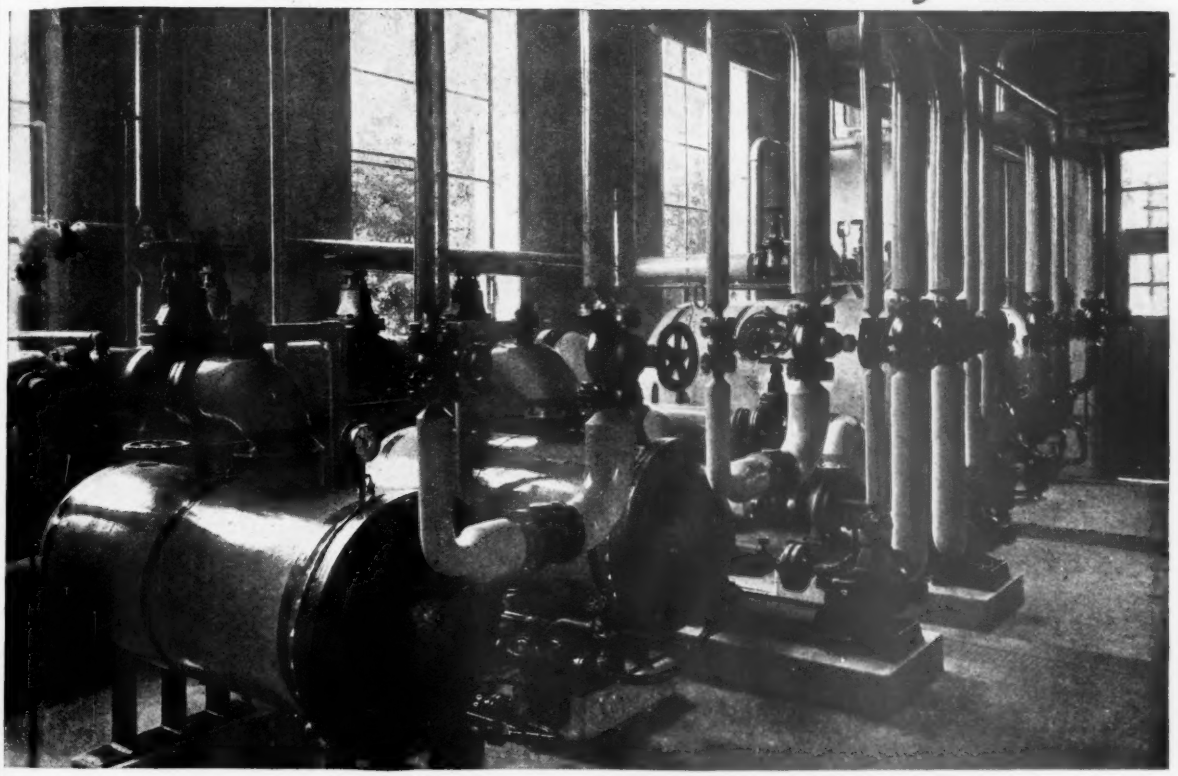

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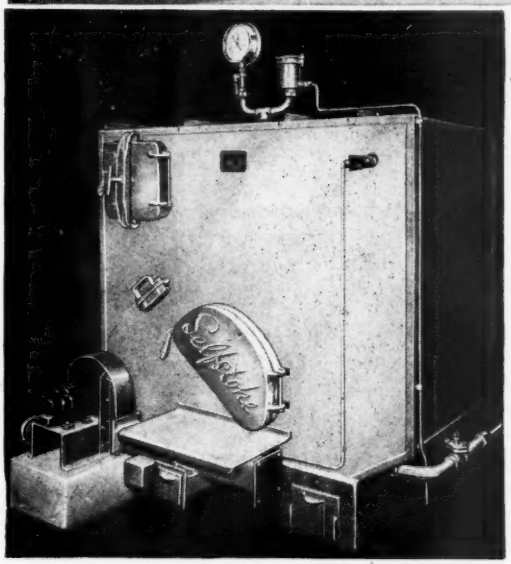

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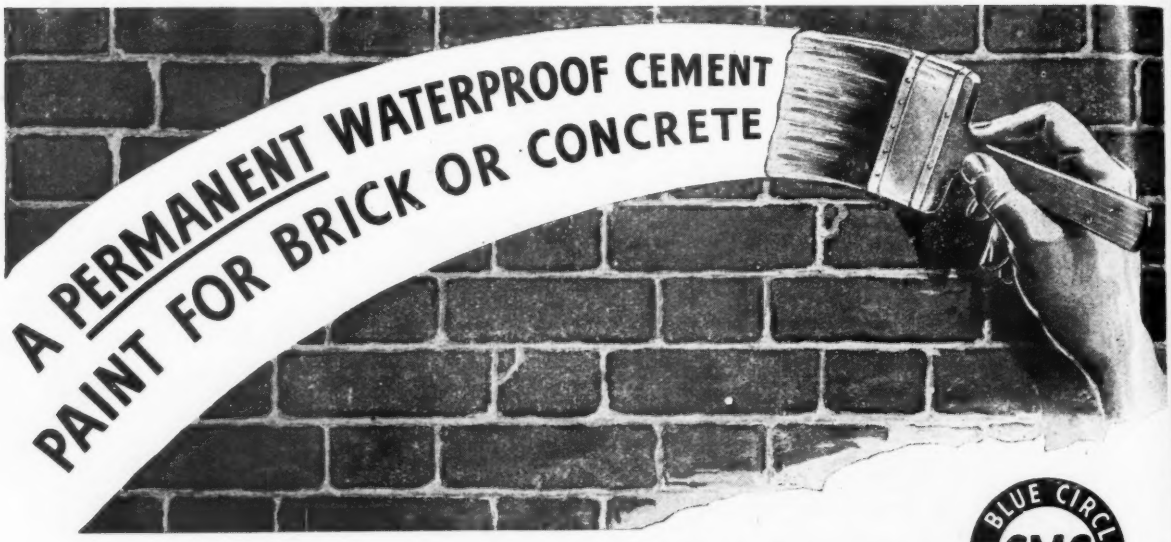

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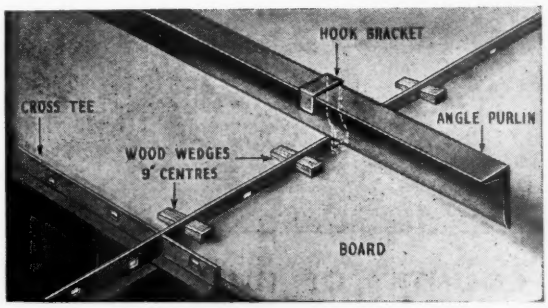

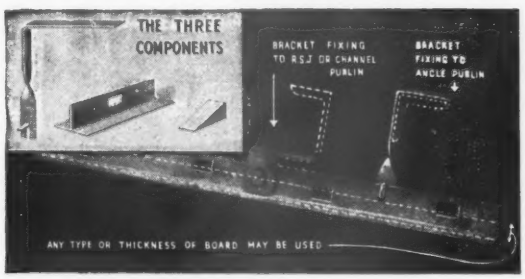
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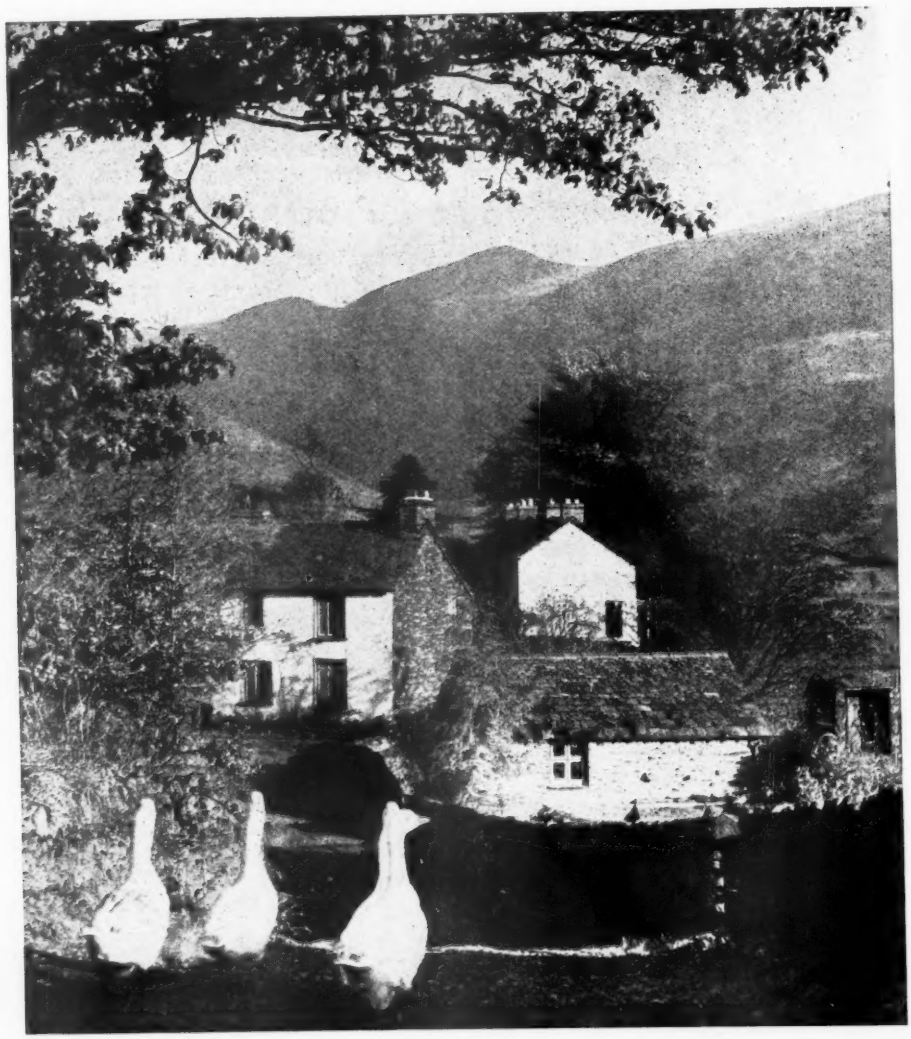

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JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

Vol. 50 *3rd Series*

No. 11 SEPTEMBER 1943

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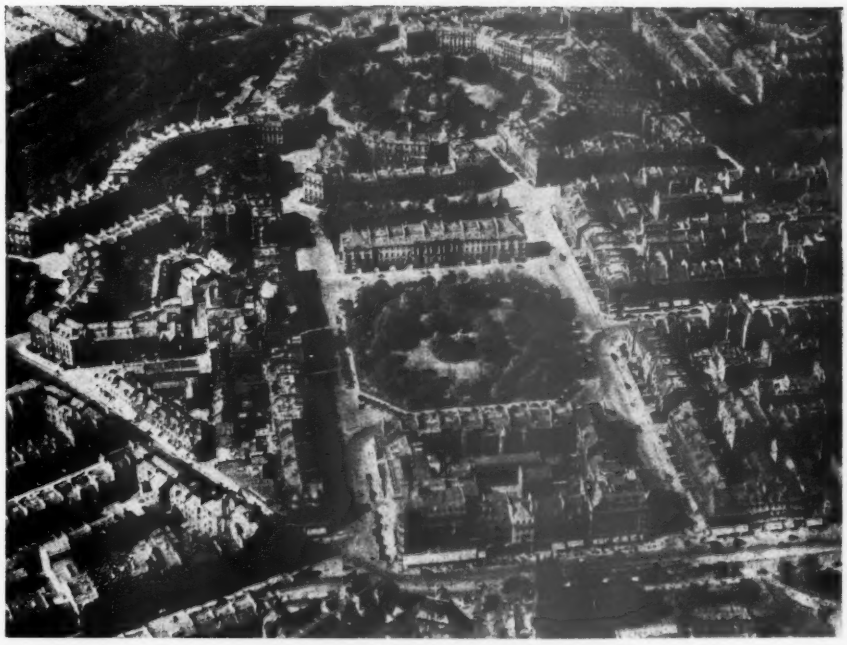


New Town, Edinburgh—see pages 250-254

Journal

The Norwood Report and Architectural Education

Members who are interested in the question of the post-war organisation and development of architectural education will have read the important Report of the Committee of the Secondary School Examinations Council—more popularly known as the Norwood Committee—on Curriculum and Examinations in Secondary Schools. The Report touches on various matters which have already been under consideration by the R.I.B.A. Special Committee on Architectural Education, particularly—as the title of the Norwood Committee implies—the question of school-leaving age and age of entry to the professions, including the profession of architecture. In the R.I.B.A. Journal of 1942, March, the R.I.B.A. Special Committee published their first memorandum on this subject, pointing to the need for a tightening up of the pre-entry scholastic standard. The Committee will be considering the Norwood proposals in so far as they may affect prospective entrants to the architectural profession and will comment on them in their own Report.

Mr. J. R. Adamson and Prof. Philip Turner

We record with regret the deaths of Mr. J. R. Adamson [*F.*], and of Professor Philip Turner [*F.*], of Montreal.

Mr. Adamson was vice-chairman of the Allied Societies' Conference and past president of the Manchester Society of Architects. Professor Turner was associated with McGill University School of Architecture, of which he was for a time acting director.

Professor W. B. Edwards

Mr. W. B. Edwards, M.A., B.Arch. [*F.*], has been appointed Professor to hold the new chair in Architecture created in the University of Durham, at King's College, Newcastle-upon-Tyne. Mr. Edwards, who has been head of the School of Architecture at King's College since 1933, is a graduate of the School of Architecture at Liverpool, Rome Scholarship Finalist, 1922, Jarvis Scholar, 1923, and R.I.B.A. Athens Bursar, 1934.

Architects' Perspective Drawings

In order to extend the Institute's collection of perspective drawings after the war members who have drawings which they would be prepared to present to the Library are asked to send lists of them to the Librarian so that in due course a selection can be made representative of contemporary and recent draughtsman technique and of characteristic British building.

The following information should be given about each drawing :

Subject. The name and place of the building stated as fully as possible. If the drawing is of a projected building which was eventually erected the name and place of the building as built should be given, even if the drawing is not actually of the final building. Where a building has been erected substantially as shown in the drawing this should be stated, *e.g.* :

"*Design for a new Church at Romford.*"
St. Agnes, High Road. Built as shown.
"*Competition drawing for new Art Gallery at Salford.*"
2nd premiated design.

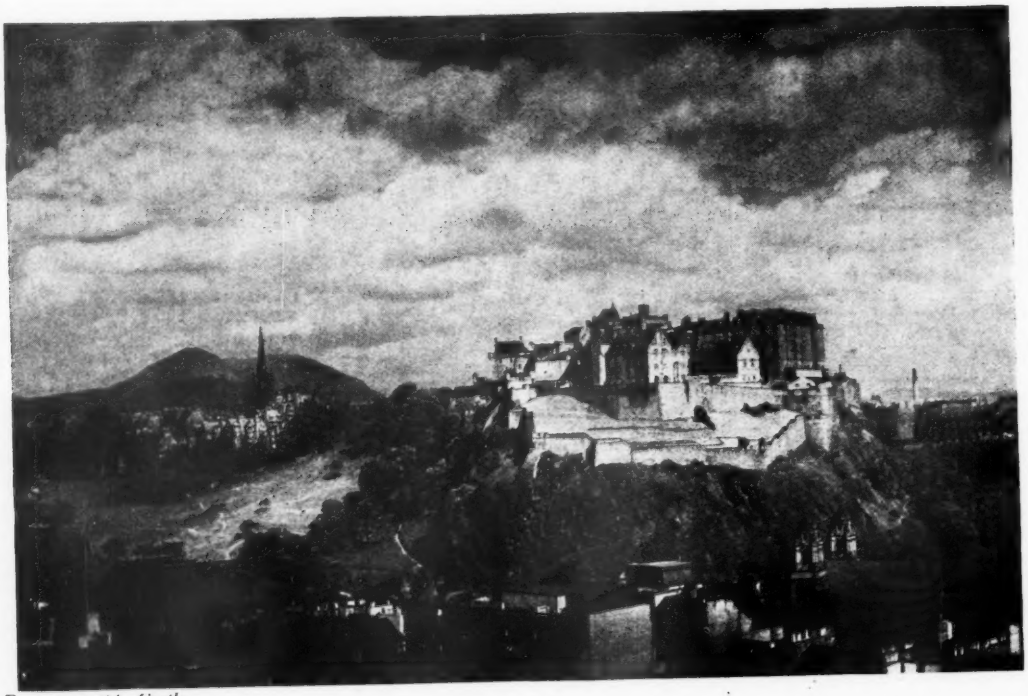
Date of the drawing.
Size of the drawing.
Medium—pen drawing, water-colour, etc.
Name of artist.
Name of architect.

Even if the selection can be made before the end of the war it is not proposed to ask for the drawings to be transferred to the Institute's possession until the war is over.

The Selection Committee will be greatly helped if, where possible, *small* photographs or cuttings of reproductions from periodicals can be sent with the lists. These cannot be returned.

Although the chief purpose of this scheme is to improve the Library's collection of comparatively recent drawings, there is no wish to limit the offers to drawings made in the last few years and offers of older drawings will be welcomed.

Lists only are wanted at this stage and no drawings should be sent until requested.



Edinburgh, The Castle.

A view from Arthur's seat—not so romantic ! (*Photo : Maconochie*)

REBUILDING EDINBURGH

by E. L. WESTWATER, A.R.I.A.S. [*A*]

This exhibition, shown between 22 July and 14 August 1943, under the auspices of the Edinburgh Architectural Association, in the National Gallery of Scotland, had in some ways a different orientation from most similar previous essays. It was felt by the committee in charge of organisation that, without making undue concessions to popularisation or sacrificing any of the necessary accuracy of research, this exhibition should attempt to appeal more forcibly and to a wider public than it is possible for one of a purely architectural and technical nature to do.

In addition, any planning exhibition dealing specifically with Edinburgh presents peculiar problems. For, besides the multiplicity of difficulties to be overcome in the re-planning of any sizeable modern town, there are others bound up with the nature of Edinburgh itself. The Scottish Capital is a city of unique natural beauty, and it has suffered less than almost any city in this country of comparable size and importance from war attack. To many of its population it is, understandably enough, almost sacrosant. " It has no slums " ; " it is our own romantic town " ; and to many conscientious citizens, to interfere with it in any way would be an insult both to tradition and to ideal beauty.

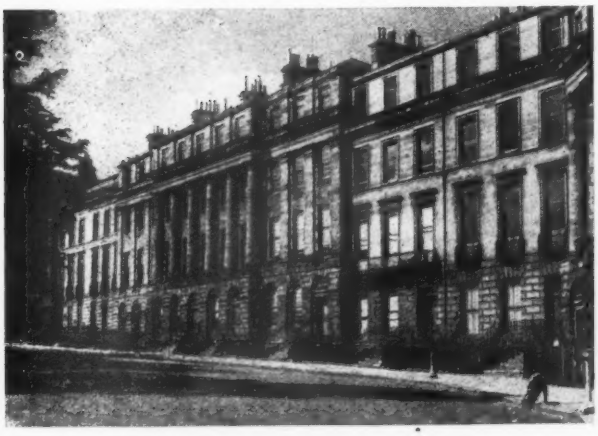
But it is a city of contrasts. Its magnificent hills and vantage points have their counterpart in hollows filled with industrial developments as chaotic as may be found elsewhere. Its famous " New Town," one of the finest examples for its epoch of planned residential streets, is not a stone's throw from slums of the worst description ; and comments from many of the thousand-odd daily visitors who attended the exhibition showed clearly enough that many of Edinburgh's citizens do not think improvement impossible. The response, indeed, both in attendance and as shown by general interest in the Press and elsewhere, seems to have justified the committee's decision to depart some way from academic orthodoxy.

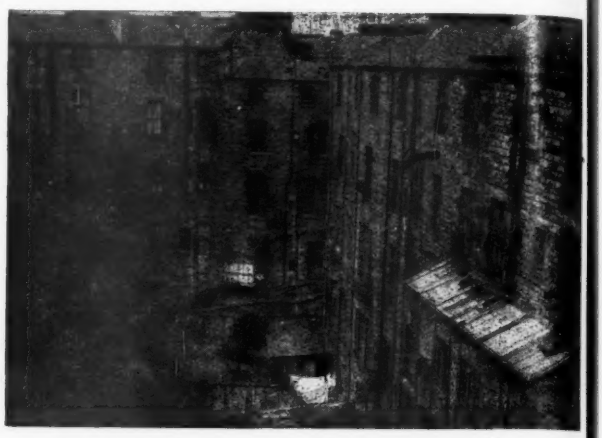
The bulk of the exhibition consisted of photographs, accompanied by a running argument of printed captions, mainly dealing with present conditions and contrasting them with future possibilities. Along with these were shown maps, diagrams and surveys (for the execution of which the Association is indebted to town planning and architectural students of the Edinburgh College of Art, who also lent an excellent model of a proposed reconstruction of part of the Port of Leith). But in addition to these, the first room contained two full-size models, the first of a one-roomed house typical of these in which many Edinburgh families " have to cook, eat, sit and sleep " ; the other a kitchen annexe to a living-room equipped according to the best standards that have already been shown to be possible for modern artisan housing. In the last room a daily film show was given, being a selection of the best available documentaries on housing and planning. Both of these special features aroused great interest.

ROOM 1

In this room photographs of the splendid aspects of Edinburgh were shown, followed immediately by others—representing by far the greater actual area—in which housing and living conditions generally vary from inferior to hopeless. (Figs. 2 & 3).

Immediately after this were shown the two full-size models already mentioned, and finally a diagram with photographs which showed the necessary segregation of housing from heavy industry, and of both from central civic activity, which must precede improvement.





Figs. 4 and 5. Moray Place : Front view and back view.

ROOM 2

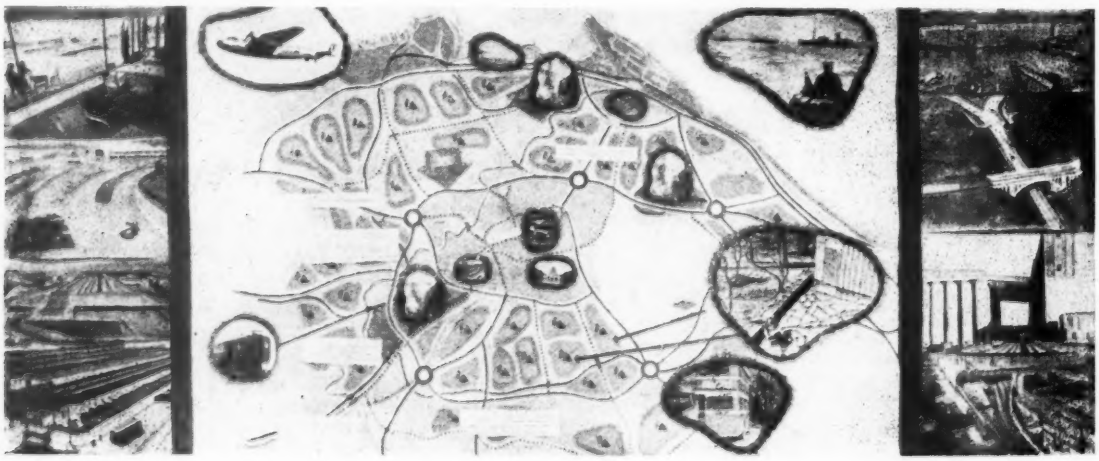
This began with a map showing the percentage of overcrowding in the various Edinburgh wards, which showed some overcrowding in all wards and very serious overcrowding in many. Altogether the average overcrowding for the whole city amounted to 17 per cent. of the houses surveyed (1936). It certainly came as a shock to many that the official figure of overcrowding for Scotland as a whole was 23 per cent., as compared with 4 per cent. in England. The photographs in this room went on to show that very many of Edinburgh's homes are obsolescent, and their general environment incapable of providing room for the facilities now agreed to be desirable, such as clinics, gardens and recreational space. This was shown to apply almost equally to the homes of the poor and to those of the " better-off " ; to town and suburb alike. The undoubted dignity and beauty of the " new town " building was shown to be a facade only, the back elevation of even Moray Place, one of the most " select " residential parts, was revealed to be completely lacking in any design, and inviting the type of slum decay which is, in fact, eating slowly into the whole of the " new town " quarter (Figs. 4 and 5).

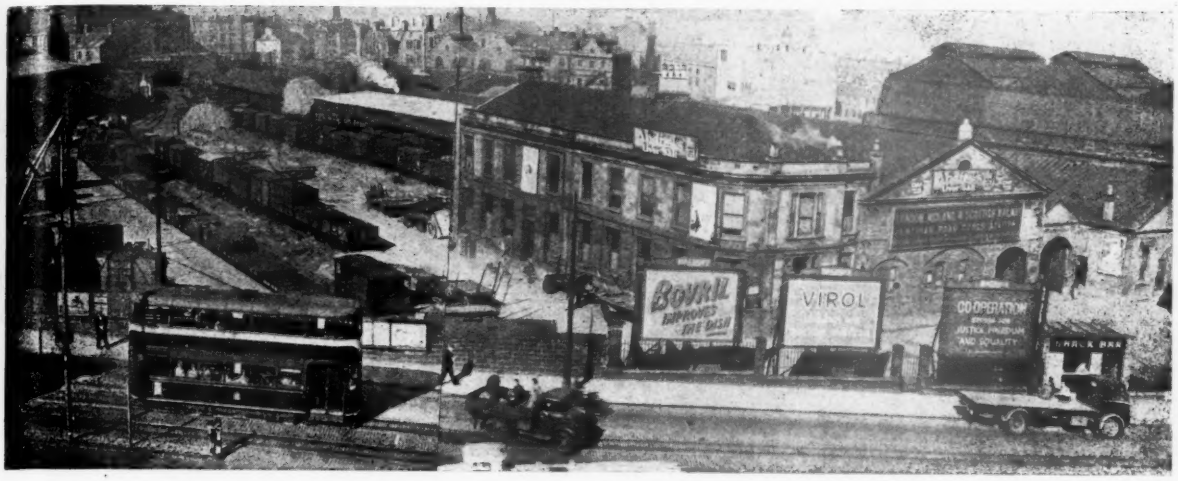
Succeeding photographs showed the effect of haphazard mixing of industry, shops and housing on Edinburgh's social life. Natural amenities, such as the once beautiful stream, the Water of Leith, were shown to be neglected and made into liabilities. The proper use of such features was shown by photographs, admittedly exceptional, selected from other cities.

Arising out of this muddle, traffic problems and their danger to life were stressed. Photographs of Edinburgh main roads, used almost equally by pedestrians and light and heavy traffic, as well as by anachronistic though electric trams, were compared with others of planned main roads where building frontages are banned and where pedestrians and traffic are largely separated. Figures of road deaths and casualties in the city for the last seven years and photographs of road accidents and their consequences were a sufficient commentary on the need for planning here.

The case for re-development having thus been stated, the remaining half of the second room proceeded to suggest methods by which the problems could be solved, and to indicate the factors that must be considered. The neighbourhood community principle was insisted on, with the possible accompaniment of well-designed *light* industrial buildings, and it was equally emphasized that the existing network of railways, penetrating from the outskirts of the city to its very centre, made reasonable living conditions impossible for many people. Here followed a sketch for a master plan (Fig. 6), showing new main roads and

Fig. 6. One of the screens : A master plan should be made to co-ordinate transport and traffic by road, rail, air and sea, to confine heavy industry within definite bounds to guide the re-development of housing in communities and to preserve the good from further harm.





These photographs from the exhibition show the L.M.S. goods yard at the Caledonian Station, which is situated at the "west end" of Princes Street almost within a short distance of the famous Charlotte Square. Lothian Road, one of the main roads south, is in the foreground. The situation of this station and yard at the "West End" brings unnecessary dirt, noise and heavy traffic into the town centre. The L.N.E.R. runs underground at this point. The plan for this area suggests the moving back of this terminus some 800 yards to a new ring road at Haymarket, where one large 2-level station could serve both L.M.S. and L.N.E. railways. The goods yard is suggested on the other side of the ring road in one of the suggested industrial areas. High blocks of offices could then be planned in this area which would form a new business centre between the suggested station and the "West End."

railways planned to co-ordinate transport by road, rail, air and sea, with special reference to the siting of three heavy industrial areas and esay access to the Port of Leith. This plan showed the enormous possible increase of areas where living could be preserved from most of the features of industrial pollution. An actual case in point was given in the new plan for Moscow, where railways previously taking up 10 per cent. of the town area were reduced to 4 per cent.

Regional considerations were dealt with in another diagram, involving new arterial roads planned in relation to a Forth Road bridge and possible airport, and also to the expanding development of satellite centres which at present almost always straggle along the existing main roads.

Photographs of a German community in blocks of flats, which permitted the preservation of trees and the anatomy of the landscape, were compared with a scheme of small houses which sacrificed them both. This led to the final wall where the economical use of land was asked for, and where it was pointed out that, although the County of Midlothian possessed soil as fertile as any in the world, one-ninth of the population of Scotland is already concentrated and housed there.

Room 3

Here the natural and traditional functions of Edinburgh as a city were discussed with regard to her architectural treatment of them. Edinburgh is (1) an administrative and cultural centre, (2) the seat of a great school of medicine, and (3) is becoming increasingly important commercially. Photographs and maps argued that on none of these counts can Edinburgh be said to have reflected the dignity of her position by providing anything approaching an adequate setting. Government departments, in spite of a recent belated attempt at concentration, were shown to be still scattered throughout the town in old houses and other unsuitable buildings. Extensions to the University and other colleges are forced out to inconvenient suburbs. Recent additions to the Royal Infirmary are crowded together, overshadowing other hospitals and nurses' homes, themselves housed in ill-adapted, not to say hideous, nineteenth century tenements. Photographs of the Carolinian Hospital, Stockholm, showed what could be done in respect of a "medical town." The remainder of this room dealt with three general aspects—Education, Public Health and Road Safety. Badly lit, badly equipped and ill-ventilated schools, and sordid asphalte playgrounds were shown side by side with new schools in garden surroundings, some of them fulfilling also the function of a community centre.

A model of some typical central Edinburgh streets, with a device giving the angles of summer and winter sunshine; other exhibits showing the quantity of dirt deposit in a graphic way; and slides loaned by the Public Health Department, gave a picture of the conditions leading to the pathetic state of children in the photographs of this section.

The importance of planning new main roads on sound principles was further stressed here by a diagram showing that, although we have fewer cars per head of population, at the moment we have a far greater number of cars per road mile than other countries. And a graph showing the mounting toll of road deaths gave a suggested peak after the war, when we are likely to have more cars on the roads. Photographs of a road safety exhibition and re-development plan of a section of Los Angeles showed that America at least appreciates the seriousness of this aspect of planning.

Room 4

In this room the essential preliminaries to planning were shown. Examples were given of the detailed local and regional surveys necessary before a master plan can be made. The first example was a detailed survey of a part of Edinburgh prepared by the Edinburgh Architectural Association; the other valuable examples were drawn from the work of the students of the Town Planning School who gain practical experience in co-operating to produce one such survey each year. The need for a social basis for all planning was also emphasised, along with the greatly enlarged scope and elasticity made possible by modern constructional methods.

The powers available to the Local Authority, such as the construction of new roads, the requisitioning of land for all public purposes, the zoning of all land for particular use, and the clearance of slums and provision of new housing, etc., were shown, and it was pointed out to how relatively slight an extent some of these powers have, in fact, been used in the past.

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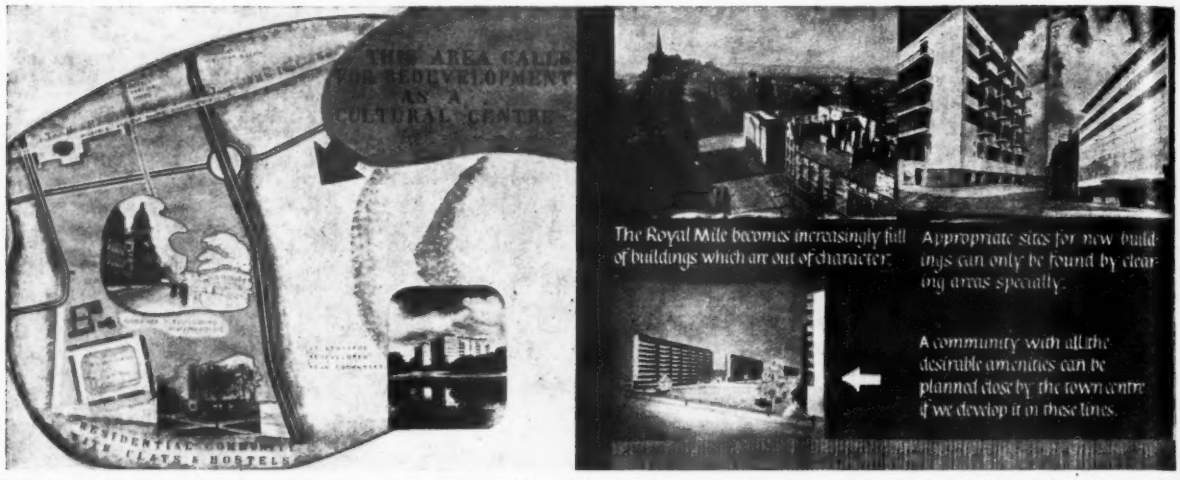
THIS AREA CALLS FOR REDEVELOPMENT AS A CULTURAL CENTRE
The Royal Mile becomes increasingly full of buildings which are out of character.
Appropriate sites for new buildings can only be found by clearing areas specially.
A community with all the desirable amenities can be planned close by the town centre if we develop it in these times.

This photograph shows part of the wall relating to the proposed Cultural Centre. The poster plan indicates the nature of the intended development in an area where at present many colleges and schools are cramped by surrounding houses and other buildings. By the construction of new main roads traffic is largely diverted from the University area, leaving it and the environs of the Royal Mile as loci *for educational and cultural buildings with plenty of space for expansion. Block plans at the left bottom show the preservation of two worthy features, namely George Square and the existing Medical School.*

The "New Town" to-day is a series of façades concealing chaos—George Street and Charlotte Square in foreground. Photo by Paul Shillabeer, from the dome of St. George's Church.

The L.M.S. Railway en route for Leith Docks. Photo: Paul Shillabeer.

An appeal was then made to the ordinary citizen, in diagrammatic form, indicating his personal responsibilities in the matter as an elector of Town Councillors and of Members of Parliament. Further photographs showed the immense possible swing-over from exclusively war-time production to that of peace-time necessities, and the public were urged to see that the social and political preliminaries for planning were made possible through the exercise of their own democratic rights.

The last room in the exhibition housed a cinema show where once or twice daily a programme of films on housing and planning problems was screened. These included "When we build again," "The City," American documentary by Lewis Mumford, "Kensal House," "The Londoners," and proved a most popular feature. During the course of the exhibition special lectures were given by Mr. F. C. Mears, Mr. Clough Williams-Ellis and others, and in addition tours conducted by members of the Edinburgh Architectural Association were frequently arranged. The attendance at these again reflected a very healthy public interest, which, it is to be hoped, will, as the Lord Provost insisted, maintain itself after the exhibition and go on to farther manifestations.

ADVICE TO THE STUDENT

For a considerable time a Special Committee set up by the R.I.B.A. has been considering the whole field of architectural education. Among other matters they have had under examination is the question of how to suggest the best methods of completing the training of the student for the time when he comes to the actual practice of his profession, whether in a private or public capacity. They believe that this can best be achieved by increasing the period devoted to office experience and by the publication of readily accessible information advising the student of the subjects to which he should apply himself during the period. The information they have prepared is given below. It will later be published, free of charge, in pamphlet form, by the R.I.B.A.

When dealing with the desirability of the pamphlet the Special Committee expressed the view that architectural education cannot be wholly successful without the sympathetic co-operation of practising architects in whose offices, whether private or official, the younger generation must hope to gain their experience. The Council of the R.I.B.A. therefore appeals to practising architects to further this important educational work by giving facilities, wherever possible, to students in their offices to visit works in progress and to study the subjects mentioned in the pamphlet.

You, as an architect in private practice, as an official architect or as a responsible assistant, will in due course be employed to perform specific work and to that end to exercise certain powers on behalf of your employer. It is, obviously, your duty to make yourself competent to carry out the duties you will undertake in return for payment. Having passed or, as a student of a recognised school, been exempted from the Final Examination of the Royal Institute of British Architects, you will already be capable of providing much that is necessary. You will possess considerable experience in design, which embodies a grasp of history, construction, acoustics, draughtsmanship and the rest, enabling you to prepare reasonable solutions of most building problems. Such solutions, however, will not have been conditioned by the duties and negotiations which immediately arise when a client first consults his architect and which continue to do so during the whole time that ideas are taking shape as drawings and, from them, being translated into structure. Realistic knowledge of such matters can only be gained in architects' offices. With this in view, it has been laid down by the R.I.B.A. that before a student can be qualified as an Associate he shall have spent a prescribed period in such an office to obtain the experience and business training it affords.

The object of this pamphlet is to indicate the most useful direction your studies might take during the required period. You will not be able to master in detail, in the time at your disposal, all the subjects which will claim your attention; you could not do so in a lifetime. You should, however, obtain thorough knowledge of some and such a grasp of the principles of the rest, as to enable you to practise your profession to the satisfaction of your client, the public and yourself.

The selection of the office in which you intend to gain experience is of major importance. Advice on it should be sought from the R.I.B.A. or from the Heads of recognised schools. On entering it you should seek the guidance of its principal on the best use of the time available to you, obtaining his permission to examine such documents and correspondence as are necessary for your studies, to consult the books in his library and to visit works under construction.

Here a few words of caution may be useful. If you look on yourself as being at the bottom of a new school and willing to undertake to the best of your ability whatever work comes your way, however strange or uninteresting, you will find that the principal will gladly explain difficulties as they arise. Being a busy and often harassed individual he will not, however, expect to spoon-feed you and he will certainly be antagonised if you give the impression of prying. The relationship will be delicate, but will give you opportunities of establishing a life-long friendship or, on the other hand, of adding one more to the series of "famous last words."

You should understand that the responsibilities described in this pamphlet are not necessarily of a legal nature; many, in addition to those referred to in Section I, are of an ethical kind which, as an architect, you will undertake towards those with whom you will come in professional contact.

SECTION I

Professional Ethics.—Members of the R.I.B.A. adhere to a standard of conduct governing the acceptance of work, remuneration, advertising and other matters. Observance of the standard is of importance, for neglect of it may result in serious consequences. Guidance will be found in the Code of Professional Practice, published by the R.I.B.A. Obtain a copy of the Code, familiarise yourself with it and ask the architect for enlightenment on any points which appear to you to be obscure.

Note: Wherever reference is made to a Contract, the Forms issued by the R.I.B.A. in 1939 are intended.

SECTION II

The Powers and Responsibilities of the Architect *in his relations with Clients, Quantity Surveyors, Consultants, Officials, Adjoining Owners, Contractors, Sub-Contractors, Clerks-of-Works, General Foremen, Foremen and Operatives.*

Clients

The architect will explain to the client the possibilities within his contemplated expenditure and will crystallise his desires into graphic form. He will explain the method of calculating architects' fees and will show, when they are needed, the necessity for and the cost of the employment of a quantity surveyor and clerk-of-works, and the amount and method of their payment. He will advise on the selection of contractors to be invited to tender, on the tender to be accepted, the form of contract to be used, and the method of payments to the contractor; and he will report and advise in good time on matters necessitating change in agreed design, additional cost or delay in completion.

Observe from the correspondence, office diaries and other records how these responsibilities are undertaken and carried out; also study the Code of Professional Practice and the Scale of Professional Charges published by the R.I.B.A.

Quantity Surveyors

The architect will keep in close touch with the quantity surveyor during the progress of the work to ensure that the preliminary estimates submitted by the architect to his client approximate to the tenders finally received, that the bills of quantities include all requirements and that the actual cost of the work can be checked as it progresses, thus enabling the architect, among other advantages, accurately to certify payments to the contractor on due dates.

Observe from the correspondence, bills of quantities, and, if possible, from interviews between the architect and the quantity surveyor, how this work is undertaken and carried out.

Consultants

The architect will make clear, in writing, to the consultant what duties and responsibilities are required of him, what information will be supplied, what fees will be paid and when. Particulars of any agreement to be entered into between him and the architect will be laid down. The architect will see that information and drawings are delivered promptly to the consultant to prevent delay in his or the contractor's work.

Observe from the correspondence, and the drawings supplied to the consultant, how these responsibilities are carried out.

Officials

There are a number of acts, and bye-laws and regulations made under them, concerning building activities. They cover such matters as general building, arbitration, contracts, copyright, housing, relations between landlord and tenant, public health, town and country planning, the registration of architects and war

damage. The architect will have in his library copies of the acts governing most of these and books on the subjects. Study them, not so much to know them intimately as to learn where to go for information. If possible, attend arbitration proceedings or mock arbitrations to learn how such things are conducted.

Observe that the bye-laws necessitate the giving of notices to, and the receipt of sanctions from, local and other authorities before any project is started and during its progress. Distinguish between the various officials concerned and note their respective rights to call for drawings, notices and other information, to give orders concerning them and to enter works.

If possible, accompany the architect when he visits officials in the course of his duties, examine the drawings and completed forms supplied to them, and read the correspondence. Observe the methods adopted by the architect to ensure that the requirements of local and other authorities are not overlooked.

Adjoining Owners

The architect, as one of his first duties, will get in touch with adjoining owners and, where necessary, consult with their accredited surveyors to ascertain how their rights will affect his client's interests. He will serve, or accept, notices on behalf of his client and endeavour to come to satisfactory terms with adjoining owners.

Study party wall and other notice forms, the drafting of awards under the London Building Act and correspondence concerning them between the architect and adjoining owners and their surveyors. If possible, accompany the architect to the site when he is dealing with these matters.

Contractors

The architect will see to it that in inviting contractors to tender, they are given similar and full information to enable them to tender accurately and on the same basis. The powers and duties of the architect *vis-à-vis* the contractor should be, and usually are, clearly laid down in the contract between the client and contractor. In addition to carrying out his duties specified therein, the architect will do everything possible to see that the contract is carried out amicably and fairly to both parties and by due date. He can do much to this end by seeing to it that the contractor receives drawings in good time, that decisions are promptly given, that the quantity and quality of work specified in the contract are provided and that certificates for its payment are issued as due.

A study of the contracts, a comparison of the progress schedule with the weekly progress report from the clerk-of-works and examination of the correspondence and certificate books will show how these and similar matters are dealt with in the office.

A form of contract agreed by the Councils of the R.I.B.A. and the N.F.B.T.E. can be obtained at the R.I.B.A. The student should obtain a copy for study.

Sub-Contractors

Study in the R.I.B.A. forms of contract the conditions governing the placing of sub-contracts and the responsibilities of the parties concerned.

Clerks-of-Works

The architect has, usually, the duty, on behalf of his client, of appointing the clerk-of-works, who is under the control of the architect but is paid by the client. The business of the clerk-of-works is to ensure that the drawings and specifications are faithfully followed, that unforeseen difficulties are brought promptly to the notice of the architect and that a periodical report on the general state of the work is supplied to him. The clerk-of-works, in watching the client's interests from hour to hour, can further these by foreseeing difficulties, assisting the contractor to overcome them and giving prompt information to the architect on points requiring his attention and particulars of drawings and instructions required.

Observe the relations between the architect and the clerk-of-works. Study the weekly reports and, if possible, accompany the architect on his inspection and listen to discussions between him and the clerk-of-works.

General Foremen, Foremen and Operatives

Since the general foreman, the foremen and operatives are employed by, and are under the orders of, the contractor, the architect will have no powers or responsibilities regarding them except the narrow measures covering unlikely contingencies which are described in the contract. He will, however, have many points of contact with all of them in different ways and degrees.

If possible, accompany the architect on his visits of inspection and observe his relations with these men ; his respect for the all-round knowledge of the general foreman and for the skill in crafts of the foremen and operatives.

SECTION III

Inspection of and Reporting on Sites and Buildings, *including Valuations and Reports and Schedules of Dilapidations and Repairs.*

Inspection of Sites and Buildings

The architect will frequently find it necessary to examine and prepare surveys of sites with, or without, buildings upon them.

Ask to accompany him and observe the use made of ordnance datum and bench marks ; the various methods of taking dimensions and levels and of plotting surveys.

Follow the methods adopted to ascertain the site conditions and observe the local enquiries made by the architect. Note particularly the methods adopted by enquiry and excavation to ascertain and record the positions of sewers, companies' services, old foundations or other objects below the ground level.

Valuations and Reports

The architect is sometimes called upon to make valuations of projects, besides those of cost. He may need to make estimates of returns and outgoings on buildings and to present reports on schemes with proof that they are, or are not, paying propositions.

Study the use made by the architect of valuation tables and the purpose for which each table has been prepared, and observe the importance of plain and direct English in writing reports.

Schedules of Dilapidations and Repairs

The architect will often be called upon to prepare such schedules. It is not always a simple matter and close attention and a methodical approach should be given to the work and observance given to the covenants of the lease.

Accompany the architect or his assistant when such schedules are being made. Observe the method used to prevent any portion of the work or any item being overlooked and note how the various rooms and items are usually related to a key plan.

SECTION IV

Sketch Designs, Perspectives and Working Drawings

Sketch Designs and Perspectives

These are prepared to enable the client to judge how his requirements are being provided for by the architect. Observe, however, that the architect will frequently and rapidly alter, develop or discard his first conceptions to meet the financial, structural and æsthetic requirements of the problem.

Notice that it is at this stage that the architect will encourage his client to adjust or vary his demands and not after working drawings have been made, when major alterations will cause serious delay and additional cost.

Working Drawings

These, with the specification and bills of quantities, form the chief part of the contractor's instructions. Observe the beauty of a first-rate working drawing stripped, as it were, for action, containing all the necessary information clearly and accurately drawn, so that references to the architect for clarification are minimised. Notice how this object is achieved by the preparation of large-scale structural details before their indication on the small-scale drawings ; by the study and checking of consultants' and specialists' drawings to reconcile them with and, where necessary, to incorporate them in those of the architect, correlating them with cross references such as stanchion numbers, positions of boilers and radiators. Note the terseness and clarity

of the explanatory notes, the absence of florid lettering, and the recording and dating of revisions.

SECTION V

Specifications and Bills of Quantities

Specifications

The specification is a description of the various materials and labours which are to be employed and the services to be rendered in carrying out works and it may be one of the documents forming a contract.

Read one or two specifications alongside the drawings to which they refer. Observe, if the specification is a good one, that each clause is precise in statement and as brief as may be ; that traditional verbiage, now meaning little or nothing, does not appear ; that impossibilities such as " perfect " and " free from all defects" are not demanded and that such expressions as " et cetera " do not occur.

Observe that before specifying an item, the architect will often draw a detail or make a sketch of it ; watch the method he employs to arrive at prime cost items before entering them in the specification. Notice also that, as he proceeds with his small-scale drawings, he will make notes of items he wishes to include in the specification.

When possible visit works in progress and check items in the specification against the drawings and both against the work.

Bills of Quantities

The bills of quantities, which are usually prepared by an independent quantity surveyor, give in schedule form every item required in carrying out a specific work and the quantity needed.

Observe the necessity of providing complete information in the form of drawings and specification for this work. This is sometimes provided in stages, as ready, to enable the quantities to proceed and time to be saved.

Observe the manner in which P.C. items, provisional sums and sub-contractors' works are incorporated and how provision is made for builders' attendance and other contingent works.

Study a bill of quantities against a specification and the drawings, and check against selected items on works in progress.

Observe the office procedure in recording variations during the progress of the work, the notification of them to the quantity surveyor, how he measures them and incorporates them in a schedule of variations which, with the original bill of quantities, will form the basis for the settlement of the final account.

SECTION VI

Tenders and Contracts and Preparation of Contract Documents

Tenders

The tender is the figure of cost for which a contractor is prepared to carry out a specified work and the time in which he undertakes to complete it.

Examine letters of invitation to tender sent to contractors, the information enclosed and the forms of tender completed and returned by them.

Observe how the number and qualifications of invited contractors are decided upon and by whom ; the time allowed for the preparation of tenders and the arrangements for their receipt and opening ; the consideration of the amounts of the tenders, the discussion of them with the client, the selection with him of the one to be accepted and the notification of contractors whose tenders have been accepted.

Contracts

The form of contract is usually a printed document containing the articles of agreement and conditions of contract. These, with the drawings and priced bills of quantities, form the contract documents. Where quantities do not form part of the contract, the specification becomes one of the contract documents.

Observe the steps which are taken to prepare the contract documents when a tender has been accepted ; the form of contract used ; the legal status of the signatories ; the procedure of signing and witnessing ; the steps taken to have the documents stamped and their safe custody.

Study the forms of a contract agreed by the Councils of the R.I.B.A. and the N.F.B.T.E. (which can be obtained from the R.I.B.A.) and read the correspondence relating to a contract for a work in progress.

SECTION VII

Supervising and Controlling Works

The purpose of controlling and supervising the progress of works is to ensure that they are carried out in accordance with the terms of the contract.

Observe the use made by the architect of a time and progress schedule and how the weekly progress reports from the works are checked against it. Accompany the architect on his visits and observe his insistence on due performance balanced by his care not to make unreasonable demands ; listen to his comments to the clerk-of-works and the general foreman and note the use he makes of the drawings and specification.

Be present, if possible, when the architect is discussing progress and payments with the quantity surveyor, and also at the general conferences of all concerned, when matters affecting progress are under discussion.

If an order book is kept on the site, inspect it and observe how it is maintained.

Observe the methods employed by the clerk-of-works to carry out his duties under the architect's control, to ensure that the works are carried out in accordance with the contract.

If, as is often the case on small works, no clerk-of-works is employed, the architect will make more frequent visits and closer inspections, in company with the contractor himself or his general foreman. Observe the methods the architect adopts in such cases.

If permitted, study the correspondence between the architect and the contractor and clerk-of-works respectively.

SECTION VIII

Approximate Estimates, Certificates and Final Accounts

Approximate Estimates

Approximate estimates are prepared from the sketch drawings for the benefit of the client and of the architect himself, to enable both to know the approximate cost of the work. Observe the method used. The architect may take out " cube " estimates, basing his figures of cost on experience of similar buildings ; he may take out rough priced quantities, or these may be supplied by the quantity surveyor.

Compare the figures in tenders received with the estimated figures, and if there are large discrepancies endeavour to trace the causes.

Certificates

Certificates are notifications to the client that the contractor has done work for which payment is due. The proportions to be certified against the work done and the intervals between periodical payments are usually laid down in the contract.

Examine the clauses of a contract to see how the issue of certificates is governed and study a certificate book.

Observe how the architect decides upon the amounts to be certified whether they are based upon figures prepared by himself or by a quantity surveyor. Note the importance of issuing certificates promptly in accordance with the contract.

Final Accounts

The final account will be prepared in accordance with the contract. Observe the care taken by the architect to make sure that this is, in fact, the final account, including all variations and extra claims of every kind. Mark the importance he attaches to every item claimed being made within the terms of the contract, for he has no power to pass any claim which is not. When a quantity surveyor is employed be present, if possible, when the architect is discussing the final account with him.

SECTION IX

Architects' Fees

Study the Scale of Professional Charges, published by the R.I.B.A.

Note the importance of making clear to the client at the outset what the scale of fees will be and by what method and at what periods they will be charged.

Note also the value of careful records of time spent on drawings, visits to works and the like, in calculating fees not computed on a percentage basis.

SECTION X

The Architect's Library and Sample Room

THE LIBRARY

The architect's library will usually be composed of material falling into four main sections, probably arranged somewhat as follows :

Historical, literary and artistic works.
Constructional and technical books.
Magazines, cuttings and information sheets.
Trade catalogues.

Examine the list of books in the architect's library and, with his advice, make a note of such of them as you intend to read, paying particular attention to those dealing with matters referred to in this pamphlet.

The R.I.B.A has issued from time to time " Practice Notes," on the advice and under the editorship of the Practice Committee. The student should study these.

THE SAMPLE ROOM

The architect will probably maintain a sample room, or will allocate a part of the library to the purpose. Observe the use made of it by the architect and study the materials in it.

Make a habit of visiting permanent and periodical exhibitions of building materials and equipment.

SECTION XI

Correspondence, Drawings and Office Diaries

CORRESPONDENCE

The issue and filing of correspondence and drawings varies greatly, largely depending upon the size of the office. The average office will usually have a file for each project, sub-divided into sections such as general, sub-contracts, accounts, fees and so forth. Observe the particular method used by the architect and the importance he attaches to the prompt issue of instructions and replies to letters.

DRAWINGS

Observe the method of filing drawings of current and completed works and the system of recording their despatch and receipt.

OFFICE DIARIES

Study an office diary and observe the records of visits to works, interviews, the decisions made and time and petty cash expended. Observe the subsequent importance of these records when it becomes necessary to use them for the purpose of checking decisions, with whom they were made, their dates, expenses incurred and such matters.

Book Notes

Old Inns of Bristol, by C. F. W. Dening, R.W.A., [*F.*]. 8vo. 116 pp. John Wright & Sons, Bristol. 1943. 12s. 6d.

This is a model of how a book on a companionable subject should be written. It takes its place without ostentation in the lineage of works dealing with that kindly institution the public inn. It is arranged and illustrated by the author with the skill that comes from first-hand acquaintance with the subject. This fact is recognised most weightily by Mr. R. N. Green Armytage, in the " Apologia " which follows the prefatory note. The wisdom of directing attention to unfamiliar buildings cannot be esteemed too highly, for everyone is prone to be contemptuous of backgrounds. Now that so much has been destroyed, not only in Bristol but in other cities and towns, minor historical features assume a new importance. Like most works which please and move, this small book is individual and authoritative. In the press of modern life things which do not come within the direct line of view are regarded in the mass as vague and shadowy. The vital force of age-old associations, the qualities of simplicity, blend so naturally in lesser buildings that fresh perception is continually called for. Tribute, therefore, is due for such promptings as those offered in the text and by the skilful illustrations.

Mr. Dening carries his deep knowledge of Bristol with the ease of experience. He knows, for example, the number of hostelries existing in 1775, as well as those which have survived enemy action and are worthy of considered repair. He describes the former planning around quadrangular courts, and he pictures vanished scenes of animation. Condescending to minute detail, we are informed of the importance of Bristol glass, and of the reserve of silver tankards which most victuallers could boast. From the Middle Ages to the early nineteenth century, no place of equal size had more inns and taverns than Bristol. In this it was only rivalled by the City of London. Of particular value are the references to certain inn signs, which indicate local industries, especially those devoted to shipping ; the author very rightly tilts at the ridiculous signs of later times. It is also of interest to learn that the father of Sir Robert Smirke, originally a coach and sign painter, became a Royal Academician in 1792. Among the buildings illustrated by Mr. Dening the following can be named : The Bathurst Hotel, The Cornubia, The Full Moon, The Grey Hound, The Hatchet, Ye Shakespeare, Three Horse Shoes, and The White Lion. The recording of these and many other features of old Bristol is both timely and welcome.

A. E. R.

City-Wide Studies. Pt. I : Basic factors in the planning of the City of New York. Pt. II : The planning of public services. Pt. III : Programming public improvements. The Mayor's Committee on City Planning ; prepared with the assistance of the Works Project Administration. 3 Vols. 4to. xvi+133 pp., xii+122 pp., xii+76 pp., New York. 1940.

These three important studies are among the books presented to the R.I.B.A. by the American Institute of Architects.

The studies reported in these books were started on Mayor La Guardia's initiative in 1934, when soon after taking office he stressed the need for " modern city planning " in solution of the city's problems involving centralised, co-ordinated collection and analysis of every significant factor in the city's growth and present existence. The Committee were able to make use of the extensive studies of the New York Regional Planning Association, in connection, particularly, with population estimates, but a vast amount remained, and still remains to be done.

The present reports are not concerned with the Committee's *recommendations* which have been presented and had immediate result in the formation of an official planning agency, but the operations of the agency were deferred for four years while further studies were pursued. These were designed to cover a larger field of subject matter than hitherto had been customary in city planning projects. It was felt that emphasis should be transferred from such public services as have frequently engaged primary attention in the past, namely, traffic, transit, recreation, etc., to " the very essence of the city itself, its reasons for existence as an economic and social entity, with detailed investigation of the size, location, condition and general adequacy of the residential areas, business and industrial districts, and where people live and work." A second extension consisted in the translation of these facts into terms of potential and available financial resources indicative of the extent and speed of realisation.

The headings in the volumes published are as follows : Vol. I : *Status and Trends of Industry*—dynamic factors in the location of industry and analysis of the trends of the principal industries. *Population Pattern*—including a critical analysis of estimated population for 1970. *Residential Areas Special Studies* of public property and non-residential areas. *Zoning*—including studies for a new zoning ordinance. Vol. II : *The Highway System. Water Supply. Sanitation. Education*—population of school age, school requirements. *Parks. Rapid Transit, Other Public Services*, e.g. Docks, Airports, etc. Vol. III : *Financing Permanent Improvements. Programme for Permanent Improvements.*

SAWDUST-CEMENT

NOTES FROM THE INFORMATION BUREAU OF THE BUILDING RESEARCH STATION*

GENERAL

Since the war, there has been a considerable revival of interest in the possibilities of sawdust-cement products for a number of different applications in building. The material has been used in the past from time to time and has usually given rise to failures. Without some knowledge of the reason for these failures, they are almost certain to recur in any present or future use. On the other hand, many of the properties of sawdust-cement mixes are promising and the starting materials are all in good supply. If, therefore, the conditions which give rise to failures can be circumvented, there is every reason to suppose that a valuable addition to available building materials can be made.

A study of sawdust-cement was made at the Building Research Station as far back as 1925, and from then onwards isolated tests were made. A further investigation has been carried out at the Station during the last two years. The data which have been obtained and the conclusions which have been drawn are summarised in the present note, in a form which it is hoped will give guidance to manufacturers and users.

NATURE AND PROPERTIES OF SAWDUST-CEMENT

Sawdust-cement can be looked upon as being intermediate between a lightweight concrete on the one hand and timber on the other. As the name implies, it is made, basically, by mixing sawdust, Portland cement, and water and forming the plastic mix into the shape desired, usually by casting in moulds. The properties of the set product can be made to vary chiefly by varying the proportion of cement to sawdust, although some additional variation can be obtained by altering the proportion of mixing water, or by varying the amount of tamping, as with other concrete products.

The practical range of proportions of cement : sawdust is from 1 : 1 to about 1 : 5 by volume. At the 1 : 1 end of the scale, the products weigh about 100 lb./cu. ft., and at the other end about 40 lb./cu. ft. The strength of the set product is reduced progressingly as the sawdust proportion is increased, but is on the whole higher than that of other lightweight concretes at equivalent weights. A characteristic feature is that the ratio of transverse to compressive strength is higher than that of normal concrete products.

The lean mixes can be cut and nailed easily. At the richer end of the range, i.e., richer than about 1 : 2 cement : sawdust by volume a point is reached at which the mixes can be nailed during their early life but refuse nails after maturing and hardening.

The thermal insulation value of the material is not quite equal to that of other lightweight concretes when compared at equal weights per cu. ft. Another difference is that the rate of loss of water during maturing seems to be slower than that of other types of concrete; similarly complete saturation of the dry product is attained more slowly than with other lightweight concretes.

The property which represents the major disadvantage of sawdust-cement is that of a very high shrinkage on drying and expansion on rewetting, the order of values being some ten times as great as that of other lightweight concretes. Another major practical difficulty is that of securing uniformity of properties from one mix to the next. These two difficulties seem to have been the cause of nearly all the failures which have arisen in the past and are therefore considered in greater detail in the sections which follow.

SHRINKAGE AND EXPANSION OF SAWDUST-CEMENT PRODUCTS

All products which are made with Portland cement shrink on drying and expand on rewetting. This feature is well known, but with normal concrete products the movement is, in fact, small (in the range of say 0.01-0.1 per cent.), and it is not difficult in most cases to take simple precautions to avoid troubles from movements which may take place through alternate drying and wetting cycles. The movement is caused mainly by the Portland cement itself and tends to be greater in magnitude as the proportion of cement in the mix is increased. In sawdust-cement mixes, however, the movement is caused both by the sawdust and the cement. The contribution of the former seems to be greater than that of the latter so that the movement becomes *less* as the proportion of cement is increased and would of course ultimately be reduced to that of the cement alone as the sawdust is reduced to nothing, while in ordinary concrete the movement would be increased to that of the cement alone as the aggregate is reduced to nothing.

The movement is not readily restrained, nor it is accommodated by creep. The result is that precast units fixed with mortar joints or by other rigid fixing methods tend either to open at the joints or to crack. In addition they may warp or become concave on the face which is drying. Jointless floor surfacings in mixes of this type have frequently shown lifting or cracking from this cause and cracked walls or opened joints have also been common. When attempts are made to reinforce the material either with timber or steel, there has also been a tendency for cracks to develop at regular intervals either along or across the reinforcement.

When the movement is examined in detail in the laboratory, it is found that the reversible movement from dry to wet and back to dry again (the latter by heating in an oven at 122° F.) is of the order of 0.2-0.55 per cent. depending on the cement-sawdust ratio. On drying from the saturated state, little or no movement takes place as the first few per cent. of water is removed and then the material shrinks in regular proportion as the water is removed. The process follows in reverse on wetting; there is a regular expansion with increase in water up to a point after which there is no further movement as the last water is absorbed. If the saturated material is allowed to dry simply by storing in an atmosphere at 65° F. and 65 per cent. relative humidity, much the same behaviour takes place, except that the total movement is smaller because at the final equilibrium more water is left in the product than when it is dried at 122° F. A composition which has attained equilibrium at, say, 65° F. and 65 per cent. relative humidity will expand if placed in air at a humidity of 90 per cent. and a temperature of 65° F., or will contract if placed in air at 40 per cent. relative humidity and 65° F. The extent of this movement is about 0.1 per cent. in either direction for 1 : 2 or 1 : 3 mixes.

A number of useful deductions can be made from the above. In making a precast unit it is best to keep the proportion of cement : sawdust as high as possible, because this reduces the natural total possible movement. It also has the effect of increasing both the strength and weight and reducing nailability, the latter two factors usually determining the extent to which the sawdust content can be reduced. After casting, the product needs careful maturing, the last stages preferably being in the open, but under cover, or in an open shed. Even ventilation round the product will tend to prevent uneven drying from one side and hence tend to prevent warping. The final matured product will be in a moisture condition roughly equivalent to

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that to which it will be subjected in use and the opportunity for large movements to occur will be very much reduced. A maturing period of 4-6 weeks may be required.

In effect, the treatment has some resemblance to that which would be given timber and is applied for much the same reason. Unfortunately the residual movements which can take place are still too great to enable the final product to be used in all the situations in which a concrete product could be used. One other precaution which can be added is to waterproof by painting or by covering with a tar or bitumen when the units have been built into the structure. This method has been tried for temporary structures, so far as is known with reasonable success ; it would also be the obvious one to apply to sawdust-cement used as a timber substitute for shelving and the like, while a modification of the method has been used successfully for precast flooring blocks.

There is, however, an alternative which seems to give promise and has already been used successfully ; that is to design the method of fixing so that the units are allowed some freedom of movement. A good example of this is a unit evolved by the Directorate of Constructional Design, Ministry of Works, and used in the Ministry of Works standard hut, in which plank shaped units are laid between posts and fit into grooves in the posts. The units themselves are tongued and grooved and have dry joints. Another recent example from the same source which seems very promising is that of a roofing unit for pitched roofs designed to fit over steel or concrete rafters and to be held to them by simple spring clips. These units are shaped to allow a covering of clay or concrete tiles which can be nailed down. In both examples, providing the maturing precautions mentioned previously are taken, any residual movements in either direction can be taken up through the method of use. A further example, and perhaps the simplest, is that of flat slabs for use on roofs. These are nailed or bolted to the structural members, but the nail or bolt holes are left sufficiently large to allow for some movement. The top surface is then covered with roofing felt, which prevents any gross wetting and drying, and hence gross movement, taking place.

It will be clear that it is not practicable to render or plaster walling units fixed by this method and for an interior decoration wallboards, if necessary, are the obvious choice. The boards can be nailed direct to the units.

Nailing blocks of sawdust-cement have been frequently used in the past, so far as is known without trouble. These, however, are individual blocks and their overall movement is no doubt small enough to avoid cracking or other failures.

Flooring mixes present special features and are treated in a separate section. The use of sawdust-cement as a rendering or plastering mix cannot be recommended because the high drying shrinkage would make it almost impossible to guarantee freedom from cracking.

Lastly, it may be noted that the obvious method of trying to pretreat the sawdust to modify it so that its shrinkage and expansion features are neutralised has not yet been found a successful solution. Pretreatment is usually necessary, but for other reasons, such as are discussed in the next section.

Uniformity of Sawdust-Cement Products

Systematic examination of manufactured sawdust-cement products has often shown a disturbing absence of uniformity in weight per cu. ft. and in the strength of the material. Another not uncommon feature is the failure of a batch to set or for a batch to be slow in hardening.

Absence of uniformity may be caused sometimes by faulty technique. The pre-cast products are usually made by hand rather than by machine and there is a tendency to prepare mixes at too wet a consistence, without very much control over proportioning and placing. For a given proportion of cement to sawdust, there is an optimum water content at which the strength is a maximum ; with wetter mixes the strength falls off rapidly while the shrinkage movements also increase. With the very wet mixes which are sometimes used, consolidation in the mould is also impossible, all these factors increasing the chances of variation from one cast to the next.

However, a further factor is superimposed on all these, that of the influence of the sawdust on the cement. Investigations, both at the Building Research Station and elsewhere, have shown that all sawdusts contain substances which affect the setting and hardening of cement. The extent of the deleterious effect varies with the type of wood ; with some the effect is small enough to be ignored ; with others it is sufficiently harmful to inhibit setting and strength development altogether. Unfortunately, since sawdust is a by-product, it is only in rare cases that a batch is not a mixture from various woods and consequently there may be considerable variation in results from mix to mix unless suitable precautions are taken to overcome the deleterious effects.

These precautions take the form of a pretreatment of the sawdust or of an addition to the cement-sawdust mix, and there are numerous patents covering inventions to this end. The Station's investigations have shown that Spruce, Scots Pine and Poplar sawdusts have sufficiently small an effect to be able to use them without pretreatment. However, improved results, evidenced by an increase in strength, are obtained by adding a proportion of hydrated lime to the cement-sawdust mix. The proportion is not critical but optimum results are obtained with additions of between ¼-½ volume per 1 volume of Portland cement, no advantage being gained in going beyond this quantity. It must be emphasised that the addition is not simply one to improve workability as would be the case with a cement-sand mortar, but is in fact one bringing about an improvement in setting and strength development. Birch and Elm sawdusts give poor results with cement alone but when the lime addition is made the deleterious effects are largely overcome. On the other hand, Larch, Douglas Fir, Beech, Ash, Oak and Western Red Cedar sawdusts all have very markedly deleterious effects and the effect is not overcome by making a lime addition to the mix. A more complicated pretreatment is required for these.

As a practical point, batches of mixed softwood sawdusts at the present time are usually sufficiently well treated by the lime addition method. The main source of trouble seems likely to be in the quantity of Larch sawdust which may be present. For those relying on outside sources for supplies of sawdust, the simplest method is probably to seek a supply of mixed softwood sawdust with the minimum amount of Larch in it and to carry out a simple check test on each batch, the test being that of making a trial mix to observe that it sets and hardens satisfactorily. If it does not do so, it is probably simpler to reject the batch and secure an alternative one rather than to put in hand a pretreatment method, in view of the cheapness of the material.

However, there are cases where a manufacturer may wish to make use of sawdust which is unsuitable without pretreatment. The available patents cover a wide variety of methods with which it is outside the scope of this note to deal. One difficulty is to find a method which is equally effective with all sawdusts. A method found by the Building Research Station to apply to all sawdusts is as follows :—

The sawdust is immersed in boiling water for 10 minutes then washed freely with water. It is then again immersed in boiling water, the latter this time containing 2 per cent. dissolved ferrous sulphate, removed and again washed freely, and then allowed to drain. Sawdusts with high tannin contents become blackened under the treatment through the precipitation of a ferric tannate on them. The lime addition to the mix with Portland cement can be used with advantage with sawdust treated in this way. The method has been made the subject of a patent application, details of which may be obtained by application to the Station.

Summarising this section, therefore, some care must be taken before uniformity in sawdust-cement mixes can be obtained. Precautions must be taken about the sawdust itself, in the manner outlined above, to avoid deleterious action with the cement, and at least as much care must be taken in controlling in proportioning, placing, etc., as is customary with other concrete products.

Manufacture of Pre-cast Products

Much of the information already given is directly applicable to the manufacture of pre-cast products, but it may be helpful to bring the points together with others in a brief summary. The products are usually made by hand in wooden moulds. Cement : sawdust proportions of from 1 : 3-1 : 2 represent probably the most useful range, giving products weighing 60-80 lb./cu. ft., which are nailable, have crushing strengths of 600-2,000 lb./sq. in. and transverse strengths in the range 400-750 lb./sq. in. at 28 days, with a thermal conductivity of about 2.0 B.Th.U.'s, etc. For special cases, e.g., where lighter products or those having somewhat better insulating value are required, mixes of 1 : 4 or 1 : 5 may be used but have then reduced strength and higher shrinkage and expansion movements. Calcium chloride can be used, as with other concrete products, to accelerate setting and early hardening. It should be dissolved in the mixing water before the latter is added. The quantity required for effective use may be a little higher than normal, say 2-5 per cent. by weight of the cement content, but an excessive amount should be avoided.

Care must be taken over the selection and treatment of the sawdust and the normal precautions over control in manufacture must be exercised. After casting, adequate maturing is essential, the final maturing being preferably under cover.

With all these precautions, it is still necessary to make an experimental trial of the shape and size of the unit to be made. The properties of the material and the nature of present-day requirements lead naturally to attempts towards making large units. Despite all these precautions, however, it seems to be the case that in practice warping or cracking during maturing may still occur with some shapes. While it is possible to give a very rough guide from past experience of shapes which have not been successful, it is not possible at present to give definite rules which can be followed in designing new shapes.

The question of control during manufacture is discussed in a later section under "Specification."

Flooring Mixes

There is a reasonably long experience of the use of small pre-cast flooring blocks having essentially a sawdust-cement base. In some of the proprietary types, these blocks are impregnated with a drying oil and it would therefore be expected that movement of moisture into them would either be prevented or retarded, thus minimising any opportunities for moisture movement to take place. The method in essence resembles that of the waterproofing by painting, mentioned earlier.

The major present need, however, is for a jointless flooring composition, to fill the gap caused by shortage of timber for flooring and of the absence of other commonly used jointless surfacings, such as magnesite, mastic asphalt, or rubber latex types. The principal advantage to be gained with a sawdust-cement composition instead of a simple sand-cement surface lies in the greater impression of warmth and quietness. The principal known disadvantage is the tendency to lifting and cracking of plain sawdust-cement mixtures. This tendency has so frequently caused failures that it has so far not been possible to determine whether the wear resistance would be good enough for, say, domestic or light office use. Recently more attempts have been made to overcome lifting. For example successful results were obtained in one case in laying floors in houses by laying direct on to a fresh cement-sand mortar screed before the latter had set, using a sawdust-cement mix at a dry consistence and taking considerable care in consolidation and finishing, with careful supervision throughout the work. Tests at the Station have shown that there is much less risk of parting of the layers when the sawdust-cement mix is laid immediately on fresh concrete than when laid on concrete which has set and aged. The difficulty is, of course, that it is not always possible in practice to do this, and that in any event there is not much margin of safety in the result. The general impression to be gained is that successful results are mainly a tribute to good craftsmanship and strict supervision, any small mistake causing an obvious failure.

This problem has been examined recently in some detail at the Station. Clearly, any method which reduced the shrinkage of the mix would increase the margin of safety, which, as it stands, depends solely on the perfection of the adhesion between surface and base. It has already been shown that no known treatment of the sawdust exists which will help in this way, but that some reduction is possible by reducing the ratio of sawdust to cement. Another method which has been examined is that of using mixtures of sawdust with an inert aggregate, such as sand or crushed limestone, instead of sawdust alone, and it has been found that a useful reduction in shrinkage is obtained in this way. For example, the drying shrinkage of a mix of 1 : 3 cement : sawdust at a plastic consistence was found to be 0.55 per cent. By substituting half of the sawdust with sand, to give a 1 : 1½ : 1½ by volume mix at a similar plastic consistence, the movement was reduced to 0.14 per cent. Total substitution to give an ordinary 1 : 3 cement : sand mortar gave a mix having a shrinkage of 0.06 per cent. This substitution is, however, made at the expense of the warmth and quietness and it is necessary to arrive at some compromise. Trials have shown that a suitable compromise lies in the range of mixes from 1 : 1½ : 1½ to 1 : 1 : 2, cement : sand : sawdust, by volume. It has been found possible to lay such mixes on old concrete surfaces, providing the following precautions are taken. The surface must be cleaned by wire brushing and a coat of cement slurry brushed in. The mix must be laid directly on the slurry before it has set, the mix being at an earth moist consistence and well consolidated and trowelled. The consistence is important ; it should be sufficiently dry so that it is virtually impossible to trowel a cement skin or laitance to the surface, while still being able to produce a smooth surface.

There is not yet much evidence on the wear resistance of floor surfaces of this type, and accelerated laboratory tests do not give a sufficiently reliable guide. At present therefore it would be advisable to regard them as being most appropriate for positions of light wear. As with other jointless finishes, maintenance by oiling or wax polishing is likely to make for better resistance to wear, as well as giving an improved appearance.

The mix compositions outlined above satisfy the test requirement of BS/ARP 47 for a surface to resist the spread of fire from incendiary bombs. Surfaces of this type are intended to protect wood board floors and the laying of a crack-free finish on wood boards is obviously more difficult than laying on concrete. A trial area has, however, been laid successfully by first stapling wire netting to the floor and laying the mix on this. The reinforcing effect of the wire mesh no doubt assists in minimising the chances of crack formation and can, of course, also be used on concrete as well.

A patent application to cover the methods outlined above has been made by the Station which includes some detail of the method.

Use of Sawdust-Cement

It may be helpful to summarise some of the existing and attempted uses. The list given below may not be exhaustive, but may be useful in any new projects.

(1) *Flooring*
- (i) Mainly for floor surfacing, as pre-cast blocks or as jointless finishes. Details given in the previous section. Large pre-cast flooring beams for structural use not successful because of cracking and warping.

(2) *Roofing*
- (i) Flat slabs, covered with roofing felt.
- (ii) Special pre-cast units clipped to the structural members and used as a fixing base for tiles.
- (iii) Attempts to make long pre-cast reinforced purlins have not been successful.

(3) *Walling*
- (i) Pre-cast slabs for panel filling. To avoid warping such slabs usually have stiffening ribs of various designs at the back. Methods of fixing as discussed in a previous section.
- (ii) Pre-cast nailing bricks. In common use ; treated as an ordinary concrete brick or block.
- (iii) Partition slabs or other shapes used as direct alternatives to other concrete products built into the wall with mortar. Not successful. Some large slabs cannot be made without warping.

TABLES OF QUANTITATIVE DATA

TABLE 1.—COMPARISON OF PHYSICAL PROPERTIES OF SAWDUST-CEMENT WITH CHANGE IN CEMENT : SAWDUST RATIO, INCLUDING COMPARISON WITH PUMICE AND GRAVEL CONCRETES

Material	Water cement ratio (wt.)	Transverse strength Modulus of rupture (lb./sq. in.) 7 days	28 days	Crushing Strength (lb./sq. in.) 7 days	28 days	Unit weight at 28 days (lb./cu. ft.)	Dimensional changes (linear), % Drying shrinkage	Moisture expansion	Thermal conductivity (B.Th.U., etc.)*
Cement-sawdust									
1 : 1 by vol.	0.370	775	1,037	3,790	5,080	104	0.237	0.159	—
1 : 2 „	0.553	564	771	1,190	1,783	75	0.369	0.232	2.0-2.4
1 : 3 „	0.687	443	518	450	660	59	—	—	—
1 : 4 „	1.00	137	223	92	250	41	>0.54	>0.33	1.2-1.4
Cement : sand, 1 : 3 (vol.)	0.625	471	—	2,228	—	130	0.06	0.045	About 7.0
Pumice concrete ..	0.900	—	100-150 (tested wet)	—	200-550	35-60	0.04-0.08	0.03-0.08	1.1-1.4
1 : 2 : 4 Gravel concrete	0.600	475	600	3,500	5,000	148	0.03-0.05	0.03-0.05	About 7.0

* B.Th.U. per sq. ft. per hour per 1 in. thickness per 1° F. difference in temperature between surfaces.

TABLE 2.—INFLUENCE OF SAND IN SUBSTITUTING FOR PART OF THE SAWDUST

Material	Water cement ratio (wt.)	Transverse strength Modulus of rupture (lb./sq. in.) 7 days	28 days	Crushing strength (lb./sq. in.) 7 days	28 days	Unit weight at 28 days (lb./cu. ft.)	Dimensional changes (linear), % Drying shrinkage	Moisture expansion	Thermal conductivity (B.Th.U., etc.)*
Cement : sand : sawdust									
1 : 0 : 3	0.775	268	380	649	1,093	63	0.55	0.31	About 2.0
1 : 3 : 0	0.625	471	—	2,228	—	130	0.06	0.045	About 7.0
1 : 1½ : 1½	0.625	317	480	1,227	1,940	100	0.14	0.10	4.0-5.0
1 : 2 : 1	0.600	280	468	992	1,540	96	0.11	0.07	—
1 : 2½ : ½	0.55	325	598	1,215	1,870	107	0.09	0.07	—

Tests on sawdust containing mixes made at plastic consistence ; curing conditions, 7 days moist air then air at 65° F. and 65 per cent. relative humidity.

TABLE 3.—EFFECT OF DIFFERENT SAWDUSTS ON PLASTIC MIXES, 1 : 3 BY VOL., WITHOUT MINERALISERS

Material	Loose density of sawdust (lb./cu. ft.)	Water/cement ratio (wt.)	Transverse strength Modulus of rupture (lb./sq. in.) 3 days	7 days	28 days	Crushing strength (lb./sq. in.) 3 days	7 days	28 days	Unit wt. at 28 days (lb./cu. ft.)	Drying shrinkage (%)	Moisture expansion %
Softwood sawdust 1 ..	—	0.687	—	443	518	—	450	660	59	—	—
„ „ 2 ..	—	0.625	—	268	380	—	649	1,098	63	0.55	0.31
„ „ 3 ..	11.0	0.835	118	281	440	248	592	1,095	68	0.53	0.28
„ „ 4 ..	—	1.085	42	141	—	114	314	—	80.0	—	—
with a lime addition	—	1.125	159	242	—	405	574	—	85.0	—	—
Spruce sawdust ..	7.1	0.80	207	303	437	460	683	1,170	68	0.41	0.21
Oak „ ..	21.5	1.20	36	75	130	86	179	323	53	1.12	0.66
Beech „ ..	12.2					Did not set					
Red Cedar „ ..	10.4					Did not set					

TABLE 4.—RELATION BETWEEN FREE WATER CONTENT AND DIMENSIONAL CHANGES. 1 : 3 CEMENT : SAWDUST BY VOL. DRYING CYCLE IN AN OVEN AT 50° C. (122° F.) OVER AIR DRIED WITH $CaCl_2$. WETTING CYCLE BY IMMERSION IN WATER AND ALLOWING TIME FOR REDISTRIBUTION OF WATER AT EACH POINT. DRY LENGTH TAKEN AS ZERO

Drying cycle*		Wetting cycle	
Water content %	Length above zero %	Water content %	Length above zero %
28	0.37	0.0	0.0
17.5	0.37	7.0	0.16
12.5	0.32	12.0	0.24
9.5	0.26	14.5	0.27
5.0	0.14	23.5	0.28
2.0	0.05		
0.0	0.0		

* Data are given during the *second* cycle of drying and wetting in a series of such cycles.

(4) *Timber substitutes*

(i) Bench seats, e.g., for air-raid shelters. Chief disadvantage is a low resistance to breakage by impact when used in this way.

(ii) Shelves.

(iii) Miscellaneous articles, examples of which have included gates and bookshelves.

(5) *Surfacing to other pre-cast concrete pieces*

The sawdust-cement surface must be cast on to the backing preferably before the latter has set. It is not suitable for casting on lightweight concrete because the shrinkage is sufficient to crack and distort the backing, but can be cast on to dense concrete to give a surface which feels warmer and will take nails.

SPECIFICATION

The earlier sections will have indicated that, useful as the product may be, success with it depends very much on adapting methods of use to its particular properties. A specification to cover the material itself would therefore be less helpful than with other materials and would certainly not alone be a sufficient guarantee that failures would not occur. However, the possibility of variation and the need in pre-cast products for adequate control and maturing make it desirable that some form of control of quality should be adopted. Probably the best method is to link the requirements to the actual product and relate any tests which may be performed to the conditions which will be encountered in practice. As an example, the Ministry of Works required units for use in the standard hut to satisfy certain performance tests, the basis for which was determined by previous tests at the Building Research Station. The units were required essentially to be uniform in properties, to be sufficiently well matured and to be reasonably strong, in order to lessen the risk of breakage in transport. It was found that a guide to uniformity could be obtained by a test of the weights of a representative sample of units from each batch and it was required that the weight of each unit should fall within a given range. The strength requirement was met by a simple proof load test of transverse strength. Adequacy of maturing is a more difficult condition on which to provide a test. In this case it was observed that sawdust-cement mixes of similar composition to those of the hutting units when used externally, dried to a moisture content of about 12 per cent. in the summer. It was therefore decided to use a free water content test as a guide to the extent of maturing and to require that the free water content of a sample should not be more than a given amount. The possibility of quick accelerated drying before the strength of the material is well developed is guarded against by the proof load test. As has been previously described, these units are used in a way which permits some freedom of movement, but excessive movement would be undesirable as it might lead to the specimen becoming curved during exposure in the hut. A secondary result of the strength requirement is to keep the natural possible movement within limits and the adequate maturing further limits this. As an additional safeguard, a limit was placed on the rate of water absorption by a simple immersion test, since obviously if the rate is slow, the full movements are unlikely to be developed under ordinary climatic conditions.

These tests were all of quite a simple type, easily capable of being carried out at the manufacturers works. Thus, having selected the appropriate number of units as a sample from those to be delivered, the procedure involved :—

(i) Weighing the units and recording whether they fell within the desired weight range.

(ii) Subjecting them to the proof load test, which consisted essentially of supporting them at the ends and loading them at quarter points with a definite load (in this case 1 cwt. sacks of cement were used as loading weights).

(iii) If the units survived tests (i) and (ii), immersing them in a tank of water for 24 hours and reweighing, calculating the percentage of water absorbed from the two weights.

(iv) The free water test was applied to a separate small specimen and was determined essentially by determining the loss in weight on drying at 212° F. This test is actually the first to be done and the remaining tests are not made until satisfactory results are obtained for the free water test.

A programme of tests of this type is not necessarily the most appropriate for all sawdust-cement products and is quoted only as an illustration of a course which can be followed. Requirements such as accuracy of dimensions, freedom from warping and cracking are almost automatic requirements and have therefore not been dealt with in detail in the example chosen, although they were, in fact, included.

LABORATORY DATA

The following tables give quantitative data which has been obtained in specimens made in the laboratory :—

Table 1.—Comparison of physical properties with change in cement-sawdust ratio, including a comparison with pumice and gravel concretes.

Table 2.—Influence of the substitution of sawdust by sand.

Table 3.—Effect of different sawdusts on the strength of sawdust concrete.

Table 4.—Relation between free water content and dimensional changes.

Regional Planning and Development

By DR. H. V. LANCHESTER [*F.*]

An address given at the Royal Institute of British Architects on 28 April, as the sixth in the series on Town and Country Planning arranged by the Royal Institute of British Architects

I hope that at some future date we may have the lecture from Mr. Moon which we had hoped to hear this evening. It will probably be even more valuable then than it would be now, because the administrative arrangements for town planning are at present in a state of flux, and we may expect very definite alterations in them in the near future. It is important for us to consider our position in regard to the future organisation of the country, and, before delving into the technical aspects of our subject, many of which still await definition by the Government, we must remind ourselves that the Government themselves have not yet been able to assimilate the material in the Scott, Uthwatt and Beveridge Reports, as well as much outside them. We must, therefore, seek a broadly generalised form of approach, and consider what is the type of civilisation at which we wish to aim, suited to all the psychological variations in our kingdom.

Anyone leading an active life and taking an interest in the trends of popular opinion can form a fair impression of what is needed to raise the standards of living in such ways as would be acceptable—and that is important, for they must be acceptable—to the various sections of the community. This will provide a keynote to our procedure and a guide to our methods. Contacts with other professions and constructive trades are essential to complete this desirable education, and the medical, educational

* *Dr. Lanchester's lecture was given in place of one originally planned in the series to be by Mr. Richard Moon, County Planning Officer, Gloucester, on Planning Administration. Mr. Moon was prevented from giving his lecture by illness.*

and constructive professions are more particularly likely to possess the physical and psychological knowledge which is required. Aid from the legal profession is also necessary. But, when we come to consider this provision of the material framework of human demands and activities, we shall see that the position of the architect becomes of predominant importance, as he is responsible for all the types of building in use in everyday life, in distinction to those of the engineer, which, though of great importance economically, have a much less direct and immediate connection with the actual functions of living.

We as architects deal with the buildings in which people live and enjoy themselves, and to a large extent with their workplaces also, with their schools and their shops and their places of recreation, and it is but a short step from that to deciding how best such accommodation can be grouped and placed, which is one of the main factors in town planning. We already design the buildings ; we have only to go a step further to decide their grouping and arrangement and their relationship to each other.

The guidance for this is at present in a rather chaotic state. Even the Bill now before Parliament, introduced by the Minister of Town and Country Planning, does not touch this point, but is concerned only with preliminary conditions. Many professional and other associations have carried the programme much further than this, and have provided schedules for suitable studies in the form of preparatory survey work and other investigations, but these still need a great deal of co-ordination.

One such schedule was drawn up some twenty years ago by an International Conference. This schedule, though it might with advantage be re-edited in detail for present conditions, gives a useful basic view of the survey requirements. Many of the items in it are really more of an extension of a good school education than anything else, but they do go further in many ways. The items are as follows :—

(1) General topography, geology, contours, oil, etc.
(2) History, causes for development, archæology.
(3) Intercourse and traffic. That, of course, has a wide range, and an influence on all the other factors.
(4) The growth of centres, the density and character of the population, and the character of the occupations of the people.
(5) Housing and its ancillary demands, transit and accommodation for workers, schools, buildings for recreation, trade and other purposes.
(6) Open spaces for recreative purposes, cultivation and so on.
(7) The provision (which loomed very large at that time) for new towns, garden cities, garden suburbs and other suitable expansions. Those we have put a little more in the background at the moment, but we still talk a good deal about the best way of distributing the population.
(8) All the education demands.
(9) Artistic traditions and developments.
(10) The city and its environment.
(11) Structural methods, and reasons for these.
(12) Health statistics, industrial, climatic and other influences on health, provisions for treatment, clinics, etc.
(13) Economics. Industries, and especially agriculture, as has been indicated very clearly lately. The effects of transport, personal travel, wages, seasonal trades, finance, etc.
(14) Law and custom, building and other regulations.
(15) National and local administration, including the functions of philanthropic and ethical associations.

That sounds an appalling list, with such a widespread range of subjects as to seem bewildering in its complexity, but it is not necessary for a single mind to possess in full all the knowledge which that covers. Most of this knowledge is accessible when required, either in print or from the societies and individuals who have made these various branches of knowledge their special study ; and anyone who has to employ these different branches of knowledge can take into consultation experts in the various branches, and particularly medical and educational experts, who have devoted themselves to an intimate study of them.

I think you will agree with me, however, that architects, with their experience in fulfilling the various and complex demands of widely different types formulated by clients of very varied mentality, are better equipped to deal with and co-ordinate the broader aspects of site location and the general composition of the civic plan than are the members of any other single profession. It does not mean a fundamental expansion of these activities to visualise the relationship between civic and rural demands ; the mental processes are similar, based on a somewhat extended range of knowledge. This range, it may be legitimately claimed, is within the compass of the competent architect, who is then the equal of, and in some aspects superior to, the specialised expert, if the latter lacks an architectural foundation to his programme, except in a few cases where the expert has unusually wide sympathies.

It may be asked why, if the expert is available, these matters cannot be left to him. In fact, however, the architect who is engaged on town planning must be in a position to meet the expert on his own ground. He may not know as much as the expert, but he has to know enough to have a clear appreciation of how far his views are valid in regard to the treatment of the problems as a whole.

Most of us have ideals for the future. The extent to which these may be regarded as practicable is as yet lacking in definition, and our best course in keeping abreast of possible developments is to follow closely, but with a certain critical detachment, the implementation of the reports now in the hands of the Government, and the action taken on these and other proposals which may follow them.

The Scott Report is fairly definite in many ways. Dealing, for example, with the distribution of the workers, the reasons for the continuous transfer of rural workers to the cities, such as higher wages, more convenient homes, better educational facilities and various urban amenities, are noted in the report, and the results of this migration, mainly to the Midlands and the London area, are considered in the light of those facts.

As a measure for securing a balanced economy, the story of the 1932 Town Planning Act is one of high hopes and subsequent disappointments. Instead of extending planning powers to all land, whether urban or rural, it was so whittled down that it covered building development only, and agricultural values had no recognition at all. The only loophole of escape from compensation for development rates of value was one leaving to authorities the curious and paradoxical device of protecting land for agriculture by zoning it for building, at an uneconomically low density. Some local authorities have gone so far in this direction as to schedule large areas at 10 to 15 acres per house. The result has been that if practical effect were given to all these schemes they would provide for an additional population of 300,000,000 ! This is being rectified in the Bill now before Parliament, which does not involve using this curious way of dealing with agricultural areas.

You may also be interested in their criticism of administrative difficulties, and here the Committee did not reach complete unanimity. It is regarded as important that the movement from the country into the towns should be checked by improving the provisions for rural living. Social amenities are now being extended by such organisations as the British Legion, the Young Farmers' Clubs, branches of the Union of Agricultural Workers, and recently the Home Guard. Among women, the Women's Institutes have played a great part, and village athletics are also far from dead, but better provision of services such as water, electricity and so on is badly needed, and the provisions for health and education demand reinforcement if country living is to compete with town dwelling.

I shall not go through the whole of the recommendations of the Scott Committee, for that would take too long, but I should like to mention that it is brought out that the planning of main

roads and railways can no longer remain divorced from the general scheme, but must be fully co-ordinated with town and country planning. The exemption of statutory undertakings is regarded as definitely wrong; it destroys the balance. In the case of statutory undertakings such as railways, moreover, the cost of improvements must fall, where it ought to fall, on the community as a whole. For instance, in a report recently issued by the Thames Conservancy it is stated that in a certain district they could greatly improve the waterways for the public convenience, but the cost of this would fall on quite other people, because they would get no recoupment; they do not own an inch of the land, which would be benefited by reducing floods and so on, and the landowners would take all the profit. Such things as that indicate that we must definitely pool the operations of all public services. That is a very big matter, when we consider the importance of the railways and other undertakings which would be brought in.

When we come to the Uthwatt Report, we find more points still on which there will be criticism. This report assumes that our planning will be directed to ensuring that the best use will be made of the land, to secure its best use for the community, quite apart from the financial position; personal interests must be subordinated, and the public good must be the sole test of what is desirable or otherwise. In this report, town and country planning is regarded not as an end in itself, but as an instrument by which to secure the best use of the land in order to advance the condition of society. Planning must exist for the planned, not for the planners, and should be done unhampered by financial considerations.

The Beveridge Report raises many other considerations on which there will be discussion, and it again deprecates nay restrictions influenced by sectional interests. There is much more in it than that, but it does not cover the ground of the town planner to the same extent as the Scott and Uthwatt Reports.

So far, the Government have not committed themselves to any great extent to any of these proposals. Naturally their aim is to avoid conflicts which would be inconvenient at the present time, and they hope to reach results by compromises which will provide adequate solutions without too drastic a revolution in the social structure. This would be in accordance with British traditions and past measures of reform, but until the possible alternatives have been more closely examined it leaves the technician rather in the air. Many of us may feel sure that we know what our civilisation ought to provide and where the line should be drawn between desirable and undesirable limits, but how to make a move towards a greater measure of communal welfare without inflicting needless hardship on large sections of people is a problem more difficult to solve. Until this is done, however, the machinery for reconstruction will be incomplete, though this does not preclude action being taken in many useful directions.

Apart from the application of preparatory studies to specific areas and the consideration of towns and districts having well-defined functions, such as trade, recreation, education and so on, there are developments for which principles can be laid down as appropriate, quite apart from the facilities which may be devised for reconstruction and development. In many cases the best use to which the land may be put may be decided on, and the proportions needed for housing, industries, agriculture and other purposes laid down. The relation of these uses to each other brings in the question of transport and transit, which will also be affected by the formation of new centres, which is likely to take place owing to the establishment of large undertakings for war purposes, some of which will undoubtedly have to be utilised in the organisation for peace.

Then there is the reconstruction of heavily damaged quarters of our towns on proper lines, with due regard to economic, æsthetic and other considerations. Many of our large towns are in a terrible muddle, quite apart from the damage done to them by bombing, in respect of housing and industry. The Cadbury publications on Birmingham illustrate very well this general failure in organisation, and a good deal of hard thinking is needed to get such conditions straightened out. Most of our towns are short of the desirable proportion of open spaces for recreation and so on, and plans for a better distribution of these are also required. Our educational system is about to undergo important re-modelling, both at the start, with the provision of nursery schools, and also, in the later stages, for adolescents and even for adults. This will involve much new building, which will have to have particular regard to convenience of planning for small children.

Returning to the question of communications, the controls of rail, road and water have too long been regarded as independent of each other, and serious economic losses have resulted from this. They ought, of course, to be intimately linked, and to be considered in relation to all other communal activities, as otherwise the separate budgetting disguises the true economic position. I need hardly mention that air transport is going to make a fourth in the communication group, and this also demands co-ordination with the others. It is worth while to have at least a general idea of aerodrome requirements, and the necessary facilities for linking up the aerodrome with other modes of transport.

Again, in connection with road traffic the serious accident record demands more than a passing notice. Up to the present there has been no marked diminution in the loss of life and limb. A recent book by Alker Tripp, of the Metropolitan Police, goes closely into the question. Put briefly, he treats the main arterial roads for fast traffic in the towns and suburban areas as a network from which pedestrians are excluded. Branching from these are what are called sub-arterials, with guarded crossing places and roundabouts. The spaces in between he calls "precincts," and in these precincts traffic speed is limited, and they are to be more or less self-contained as regards shopping facilities, nurseries, junior schools and so on, so that you have, as it were, a sort of enlarged village within the reticulated pattern of roads.

Another investigation into this question of accidents was carried out by the county engineer for Oxfordshire. He analysed very carefully, with plans, 148 fatal accidents which occurred in four years in his district, and he came to the rather striking conclusion that three-quarters of them were due to various defects in road planning, two-thirds of which were of a minor character and could be rectified at comparatively small expense, and only the balance demanding major revisions in road planning. That looks as though, were he in charge of the road system of the whole country, he could reduce the accident toll to one-quarter of what it is at present.

There are many other questions which might be raised, but I prefer to summarise what our Institute has been doing in formulating the essentials of a planning programme. You have doubtless seen, if not read, what has appeared in the R.I.B.A. JOURNAL. This gives only a partial impression of the range of activities which the Reconstruction Committee has been carrying on, with the support of its various sub-committees.

These points which I have desired to present as particularly important at the present stage of our work have perforce given a somewhat discursive character to my remarks. I will bring them to a close with a quotation from the Report of the R.I.B.A. Committee on Planning and Amenities :—

> "We wish to emphasise the fact that the future grows out of the present. The character of post-war reconstruction will not be such as to satisfy our human needs automatically or as the result of vague desires. These needs can be satisfied only if the nation as a whole, and more particularly those most able to shape our policy, consider what it is that they are striving to make of "England's green and pleasant land," and act in war and in peace with the efficiency and vision needed to obtain that end. This means, amongst other things, making the best use now and in the future of the nation's resources and talents, not excepting those of the architect."

Review of Periodicals

1942-43—IV

PLANNING (Architectural); HEIGHT OF BUILDINGS

ARCHITECT AND BUILDING NEWS, *1943 July 9, p. 23 :*
The buildings in our streets : æsthetic of height-of-building-street-width ratio. Note by Howard Robertson.

PENCIL POINTS (N.Y.), *1942 Sept., p. 59 :*
Minimum ceiling heights for houses : data sheet.

CIVIL, including PUBLIC WORKS BUILDINGS; GOVERNMENTAL; CIVIC

ARCHITECTS' JOURNAL, *1943 July 22, p. 56 :*
Hydro-electric development in the Highland. Article by H. Quigley with reference to Highland industrial development and amenity.

ENGINEERING NEWS-RECORD (N.Y.), *1943 May 13, pp. 4-5 :*
Ten years of T.V.A. achievements. Illus.

ARCHITECTURAL REVIEW, *1943 June, pp. 138-166 :*
" Tennessee Valley Authority : an achievement of democratic planning." Detailed description of T.V.A. problem, methods, planning technique and achievement and buildings, by Dr. Julian Huxley, F.R.S. The most complete survey of T.V.A. in any British journal. Illustrates farms, dams, power stations, recreation parks.

WERK (Zürich), *1943 March, pp. 90-4 :*
Office buildings for the confederate War Industry and Labour at Marzili, Bern. Standardised timber-framed huts described by Alfred Roth.

ENGINEERING NEWS-RECORD (N.Y.), *1943 Mar. 25, pp. 68-72 :*
" Access to the world's largest building "—the War Dept.'s Pentagon, Washington (further reference). Roads and parking.

BUILDING, *1943 June, pp. 154-6 :*
" Buildings by the Royal Engineers " : ordnance depot shed.

ENGINEERING NEWS-RECORD (N.Y.), *1943 June 3, pp. 96-101 :*
Naval Air Training Station. Special expedients speed construction ; largely use of timber and ply ; field fabrication of laminated arches.

OFFICIAL ARCHITECT, *1943 May, p. 208 :*
Fire Station, Rowley Regis, Staffs. (Old Hill), by J. Blackburn [*A.*], architect to the Corporation.

COMMERCIAL

ARCHITECTURAL RECORD (N.Y.), *1943 April, pp. 73— :*
Commercial centres. Article by Ely Jacques Kahn. Pre-war and possible post-war types compared. Time-saver standards of office service areas and other office data.

ARCHITECTURAL FORUM (N.Y.), *1943 June, p. 97 :*
Shops, Hollywood. Seven high-class shops, all different externally and internally, but in single block, by D. Honnold and G. V. Russell.

WERK (Zürich), *1943 May, pp. 145-152 :*
Insurance office—Schweizerische Lebensversicherungs- und Rentenanstalt, Zürich, by brothers Pfister ; illustrated and described.

ARKITEKT (Istanbul), *1942 No. 11/12, pp. 241-7 :*
Turkey State Railway administrative office, Ankara, by Bedrl Ucar.

BUILDER, *1943 July 2, p. 6 :*
Office block for a factory : general, four clerks and managers' offices, by L. J. Multon. View and plan.

BUILDING, *1943 June, pp. 146-7 :*
Office block to a factory in U.S.A., by R. Neutra.

IRISH BUILDER AND ENGINEER, *1943 May 8, p. 181 :*
National City Bank, College Green, Dublin, by Donnelly and Martin.

TRANSPORT

CONCRETE, *1943 May, pp. 147-55 :*
Reinforced concrete grain silo by Oscar Faber. Construction method, sliding shuttering, described and illustrated.

ARCHITECTURAL REVIEW, *1943 Aug., pp. 51-2 :*
New shapes on wartime roads. The æsthetic of vehicles, note by A. E. Davis. Illustrated.

ARCHITECTURAL RECORD, *1942 Dec., p. 47 :*
" Island-type " bus terminal, Winston, Salem, for Atlantic Greyhound Corpn, by G. D. Brown. Docks for 8 buses.

AMERICAN CITY, *1943 April, p. 81 ; May, p. 61 :*
Analysing the design of airport runways. Article by C. K. Stephens on runway construction and drainage. (May :) Some disagreements.

CONCRETE AND CONSTRUCTIONAL ENGINEERING, *1943 June, pp. 199-200 :*
Proposed London Airport : design for 2-square-miles airport building, 300 ft. high. By J. H. de W. Waller.

ARCHITECT AND BUILDING NEWS, *1943 July 30, pp. 64-5 :*
London Airport ; project by Guy Morgan & Partners [*FF.*]. Flying boat lagoon 3 miles long and land runways 2½ miles by 600 ft. Planned for Thames Estuary.

ENGINEERING NEWS-RECORD (N.Y.), *1943 May 6, pp. 105-7 :*
Steel-frame portable airplane hangars, by Butler Mfg. Co., Kansas City. Three-hinge light steel arches from which canvas roof is suspended. Also in ARCHITECTURAL FORUM, June (" packaged ").

ARCHITECTURAL RECORD, *1942 Dec., pp. 41-4 :*
Hangar, Santos Dumont Airport, Rio de Janeiro ; by Marcello Roberto. Main space covered by roof cantilevered from deep central r.c. truss. Area 200 ft. × 450 ft.

INDUSTRIAL

ARCHITECTURAL RECORD, *1942 Dec., p. 51— :*
War-time construction of factory buildings. " Warspeed system " : standardised formwork for whole of large r.c. structure ; Turner Const. Co. travelling form system ; wood and concrete const. for heavy loadings : all as used by Albert Kahn. Also other large-span systems in concrete and timber.

ARCHITECTURAL RECORD (N.Y.), *1943 April, pp. 61-72 :*
Industrial buildings, including Heinz (warehouse and office), by Austin Co. ; electrical servicing centre (spares, stores, etc.), by R. H. Hunt ; Canister Co., small factory, by P. Beidler.

ENGINEERING NEWS-RECORD (N.Y.), *1943 April 8, pp. 106-7 :*
Ventilated building with windowless walls ; New Douglas aircraft factory, Oklahoma, described.

ENGINEERING NEWS-RECORD (N.Y.), *1943 May 20, pp. 62-7 :*
Plant lay-out for ship construction. Illustrated.

ARCHITECT AND BUILDING NEWS, *1943 June 25, pp. 202-7 :*
Pottery factory for Josiah Wedgwood & Sons, Ltd., Barlaston, Staffs, by Keith Murray and C. S. White [*FF.*]. Structure r.c. and brick, monitor roof. Scheme includes canteen, offices. Views. Site plan.

JOURNAL OF THE JUNIOR INSTITUTION OF ENGINEERS, *1943 Aug., pp. 267— :*
Air treatment in industry. Paper by M. R. G. Morton, A.M.I.H.V.E. Current air-conditioning systems ; notes on desirable air conditions for various industries ; leather, tobacco, food, paper, timber, furs, brewing.

JOURNAL OF ROYAL ARCHITECTURAL INSTITUTE OF CANADA, *1943 May, pp. 74-7 :*
Personnel service facilities for industrial employees. Article by C. G. Gibson on factory canteens, rest rooms, washhouses. Short bibliography.

THE OCTAGON. JOURNAL OF AMERICAN INST. ARCHITECTS, *1943 February, p. 15 :*
Albert Kahn 1869-1942. Memoir by Paul Cret.

WELFARE, CURATIVE

ARCHITECTURAL RECORD (N.Y.), *1943 May, pp. 61-78 :*
Hospitals. Articles : planning post-war hospital, by I. Rosenfield ; the integrated hospital (co-ordinated services), descriptive of N.Y. City D.P.W. Research under Lorimer Rich ; functional planning of hospitals (particularly operating theatre location and design), by L. A. Abramson ; new plan standards for hospital nurseries, illustrated layouts by U.S. Public Health Service. Illustrated as special articles : Hartford, Conn., Hospital, by Coolidge, Shepley, Bulfinch & Abbott ; St. Joseph's Hospital, Stamford, Conn., by R. Hume and C. F. Neergrand ; emergency hospitals for war-workers, designs for U.S. Public Health Service.

HOSPITAL AND NURSING HOME MANAGEMENT, *1943 Aug., p. 252 :*
Dryburn, Durham, Emergency Hospital. Pavilions on 25-acre site, 15 wards, 36 beds each.

WERK (Zürich), *1943 May, p. xxv :*
Hospital—Bugerspital-Neubau, Basel. Site plan and view.

PENCIL POINTS (N.Y.), *1943 April, pp. 73-5 :*
War emergency hospital, Humbolt, Tenn., by Dent & Aydelott. Fifty beds, with outpatient, maternity, surgical, medical, X-ray depts. Single-floor pavilions.

NUESTRA ARQUITECTURA (Buenos Aires), *1943 March, pp. 158 :*
" Polyclinic," Tucuman. Consulting rooms and specialists' treatment rooms, nursing home, with accommodation for 99 in 1—4 bedrooms. Architect, Jaime Roca.

BUILDING (Sydney, N.S.W.), *1942 July 24, p. 10 :*
113th Australian General Hospital, Concord West, Sydney, by Stephenson and Turner. With adjacent Pavilion Hospital. Largest hospital in S. hemisphere. 600 beds, staff quarters for 290 in multi-storey building, briefly described and illus. by photos ; no plan.

NUESTRA ARQUITECTURA (Buenos Aires), *1943 Feb., pp. 135 :*
Ophthalmological Institute, Buenos Aires, by E. L. Edo. Laboratories, treatment clinics, etc.

BUILDER, *1943 July 23, pp. 71-4 :*
Queen Elizabeth Home : Heritage Craft Schools and Hospitals, Chailey, Surrey. Extension of orthopædic wards and nurses' home, by L. K. Hett [*F.*]. Single-storey wards, two-storey nurses' wing.

PENCIL POINTS (N.Y.), *1943 April, pp. 71-2 :*
Morris Clinic, Austin, Texas, by Jessen, Millhouse, Jessen, Kuhlman ; for obstetrician.

ENGINEERING NEWS-RECORD (N.Y.), *1943 June 10, pp. 8-9 :*
Army hospital in Mid-West, built of concrete blocks. Illus. progress photos.

HOSPITAL AND NURSING HOME MANAGEMENT, *1943 July, pp. 236-8 :*
Post-war hospital planning : an American architect's opinions in answers to questionnaire.

JOURNAL OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA, *1943 June, pp. 88-9 :*
Convalescent Hospital, Montreal, Quebec : extensions to original building by Archibald & Illsley and Gratton D. Thompson, Associated Architects. Nurses' home ; 2-, 4- and 8-bed wards.

ARCHITECTURE ILLUSTRATED, *1943 April, pp. 38-40 :*
Mental Hospital, Derby : Admission block by C. H. Aslin [*F.*], assistant S. Morrison.

ARCHITECTURAL REVIEW, *1943 July, pp. 13-14 :*
Children's home near Stockholm, by Paul Hedquist. Views and site plan.

ARCHITECT AND BUILDING NEWS, *1943 Aug. 6, pp. 88-90 :*
Welfare Centre, Watford, Herts, by W. W. Newman [*L.*]. Single floor, brick structure ; waiting room, weighing, dental, doctors' and toddlers' rooms, kitchen, etc.

CAMPS

ARCHITECTURAL FORUM (N.Y.), *1943 June, pp. 55-60 :*
U.S. Army camp, general shop, canteen and cafeteria. Three standard army huts linked architecturally into unified scheme. Decorated mural paintings.

RECREATION

WERK (Zürich), *1943 May, pp. 153-157 :*
The Bibiena. Illustrated article by E. Fatio on the stage designs of the B— family, with biographical notes.

ARQUITECTURA (Montevideo), *1943, Special Number :*
"Trocadero" and "Radio City" Cinemas. Large cinema by Rafael Ruano. Described and illus. in colour.

ARCHITECTS' JOURNAL, *1943 June 24, pp. 412— :*
Welfare [Recreation] Building, Naval Training Station, Skidmore. Owens & Merrill. Lounge, radio rooms, etc. Original and striking timber structure with large-span trusses, supported on internal columns, non-supporting external screen walls. (Further reference.)

EXHIBITIONS ; TOWERS ; BRIDGES ; ADVERTISEMENTS

BUILDING, *1943 May, pp. 124-6 :*
Exhibition America Marches, at Dorland Hall, from Museum of Modern Art, N. York ; setting in London by Mischa Black.

ENGINEERING NEWS-RECORD (N.Y.), *1943 June 3, p. 135 :*
Water-tower. Metal tower with spherical tank of striking design. Illustrated.

THE BUILDER, *1943 May 28, pp. 470-6 ;*
CONCRETE, *July, pp. 211-2, 213-30 :*
The new Waterloo Bridge, a paper to I.C.E. by F. J. Buckton and J. Cuerel, of the firm Rendel, Palmer & Tritton, consulting engineers for job. Illus.

JOURNAL OF INSTITUTION OF CIVIL ENGINEERS, *1943 June, pp. 145-201 :*
The new Waterloo Bridge. Paper by E. J. Buckton and John Cuerel, MM.Inst.C.E. The most complete description of the structure and design and of the reasons for particular decisions. Well illustrated by drawings and photos. Discussion, including Sir Giles Gilbert Scott [*F.*], architect, with remarks on engineer-architect relationship.

JOURNAL OF THE LONDON SOCIETY, *1943 June, pp. 13-16 :*
Advertisements : their control and regulation.

RELIGIOUS

LITURGICAL ARTS (N.Y.), *1943 May, pp. 54— :*
Post-war planning. Article by M. Lavanoux, illustrated by designs for churches and a college library.

BUILDER, *1943 July 9, pp. 25-9 :*
St. Anselm's Church, Belmont, Harrow, by N. F. Cachemaille-Day [*F.*] ; St. Anselm's, Davies Street, W., moved and partially incorporated.

RECONSTRUCCION (Madrid), *1943 April, pp. 123-144 :*
Style in religious architecture : article by Francisco Echenique, largely illustrated by Spanish Gothic and classic examples.

WERK (Zürich), *1943 February, p. 50 :*
The Reformed Church, Zürich-Altstetten, built 1939-41, by W. M. Moser. A remarkably interesting modern design with many original features of plan, which is strikingly asymmetrical, and structure; includes community hall as crypt, with stage, "confirmands'" class rooms, etc. : fully described and illustrated in articles by H. Hoffmann and A. Schmid, folded inset of details.

ARCHITECTURAL RECORD (N. York), *1943 March, pp. 69-84 :*
Religious buildings. Illus. of 14 recent American churches and some projects, with article analysing plan requirements.

BUILDING AND ENGINEERING (Sydney, N.S.W.), *1943 Jan. 25, pp. 73-4 :*
St. Peter's Church, Proston, Queensland, by Fowell, McConnel and Mansfield ; awarded the Queensland meritorious architecture medallion, 1943 (country division).

WERK (Zürich), *1943 February, p. 61 :*
The cross-seated type of plan in Zurich country churches. Article by E. Stockmeyer on church plans with large part of seating facing sideways into body of hall (querraum prinzip) as used by Moser in Zurich-Altstetten church.

SCHOOLS

NATIONAL BUILDER, *1943 June, pp. 162-9 :*
Schools : the theory of education. Article by R. Myerscough-Walker on relation of school design to education system, followed by examples to illustrate trends in modern design, including design for youth or community centre.

ARCHITECTURAL REVIEW, *1943 Aug., pp. 35-40 :*
Schools.—At Littlehampton, Sussex, by C. G. Stillman [*F.*], in one group—senior school for 360 girls, junior girls' and boys' for 430, infants' for 240 and a clinic. At Bingley, West Riding, Yorks, by W. G. Newton [*F.*] & Partners : Senior school. At Bromma, Stockholm, by Paul Hedqvist : High school for girls. The first two pavilion schools, the Bromma school multi-storey. Plans and photos.

ARCHITECTURAL RECORD (N.Y.), *1942 Dec., pp. 28-35 :*
Co-ed. "progressive" school for 6-14 age in Adirondacks, by D. Haskell, with H.S. Churchill and R. S. Seidenberg, associated architects. A "functional" design expressive of the "work-play" character of the school and its natural environment. Red-cedar clapboards.

ARCHITECTURAL RECORD (N. York), *1943 March, pp. 63-8 :*
Planning the post-war school. Pt. I by J. E. Nichols, supervisor, Buildings, Connecticut Dept. Educ. Analysis of needs. Pt. II by I. O. Friswold, Director Buildings, etc., Minnesota Dept. Educ. Followed by illus. of Senior High Sch., Rock Island, Illinois, by B. A. Horn.

ARCHITECTS' JOURNAL, *1943 June 17, pp. 395-400 :*
School at Littlehampton, Sussex, by C. G. Stillman [*F.*]. Senior girls' department for 360, junior mixed for 432, infants for 240 and clinic. Single- and two-storey pavilions. An important contribution to "flexibility" in school design. Fully illustrated.

ARCHITECT AND BUILDING NEWS, *1943 July 2, pp. 6-8 :*
Dorrington Road (Junior Mixed and Infants') School, Birmingham, by W. T. Benslyn [*F.*], built over partly-worked coal mines with light steel and timber framed structure to minimise dangers from subsidence.

ARCHITECTURAL REVIEW, *1943 May, pp. 117-18 :*
School in Lancashire by Hubert Bennett [*F.*] for 340 children 3-11 years, 40 in nursery, 100 infant, 200 junior. Construction weight-bearing brick, timber asphalted roofs.

ARCHITECTS' JOURNAL, *1943 July 22, pp. 53, 55 :*
Bethnal Green Central School. Planning and architectural exhibition. Models and drawings by children, average age 14.

UNIVERSITIES, COLLEGES

ARCHITECTURAL REVIEW, *1943 May, pp. 129-30 :*
Fribourg University, Switzerland, by F. Dumas and D. Honegger. One of the largest and most ambitious modern architectural projects of recent years, built for Roman Catholic University. Advanced R.C. structure, æsthetically a pastiche of Le Corbusier and A. G. Perret. Plan, photos.

TECHNICAL SCHOOLS ; LABORATORIES

ARCHITECTS' JOURNAL, *1943 June 3, pp. 365-6 :*
Trade School, Berne, Switzerland, by Hans Brechbuhler. Built 1940. Art, Engineering, Jewellery, Photography, etc.

BUILDER, *1943 July 30, pp. 88-9 :*
Research laboratory (bio-chemical and bacteriological and spectroscopical) in the North of England, by J. Lomax Simpson [*F.*]. Special rooms for simulation of tropical conditions. Library. General offices.

ARCHITECTURAL RECORD (N. York), *1943 March, pp. 57-62 :*
R. C. A. (Radio Corporation of America) Laboratories, Princeton, N.J. described and illus. Special designing for advanced electrical and acoustics research ; incl. cafeteria.

ARCHITECTURE ILLUSTRATED, *1943 May, pp. 55-7 :*
Science building for Radley College, Berks (r.c.) ; by W. G. Newton [*F.*] & Partners.

LIBRARIES ; STUDIOS

ARCHITECTURAL FORUM (N.Y.), *1943 June, pp. 87-8 :*
Branch library, Chicago, by City Architect Paul Gerhardt, Jr. Ground floor adults, 1st floor children, basement stack. Simple four-square brick structure.

ARCHITECTURAL FORUM (N.Y.), *1943 April, pp. 66-70 :*
Library, Carroll College, Waukesha, Wis., by Ides van der Gracht and Walter H. Kilham, Jr. Small library for 600 students, stacks for 40,000—60,000 books. Simple domestic scale, open design.

ARCHITECTS' JOURNAL, *1943 Aug. 5, pp. 95-6, xxxii :*
Recording theatre in Denham Film Studios, by F. F. Doyle [*L.*], with A. W. Watkins, sound engineer. Specialised acoustic problems.

DOMESTIC (generally, including PLANNING)

ARCHITECTURAL FORUM, *1942 Sept.* [*delayed by misadventure*] :
" The New House 194X," a symposium of designs and executed small houses and small house equipment by young and progressive U.S. architects ; work chosen for its significance as pointer to post-war developments. Much interesting material on prefabrication and standardisation of equipment and structure, modulating unit planning, etc. : new structural methods and design conceptions.

HOUSING AND PLANNING NEWS BULLETIN (Nat. H. & T.P. Council), *1943 Aug.-Sept., pp. 12-13 :*
Design of post-war houses : synopsis of recommendations by Society of Women Housing Managers.

ARCHITECT AND BUILDING NEWS, *1943 June 18, pp. 173-8 :*
The small house in urban areas : an assessment of some planning problems, by W. Segal. Semi-detached and terrace houses.

ARCHITECT AND BUILDING NEWS, *1943 21 May, pp. 118-20 :*
Must the " universal plan " be retained for the small house. Article by R. G. Brocklehurst [*F.*]. A survey of the possibilities of departure from the standard speculative-builder plan for the small house built for sale. Later plan, adapted for 2 or 1 family, by Howard Robertson [*F.*], in 28 May issue. " Utility plan No. 5 " (preceding list) also in ARCHL. DESIGN AND CONSTRUCTION, May.

BUILDING, *1943 July, pp. 178-180 :*
Small house planning : article by Brian Peake [*A.*], indicating need for new approach with increased attention to prefabrication and standardisation. Design illustrated with scheme for central services " core."

HOUSING

ARCH. DESIGN AND CONSTRUCTION, *1943 May, pp. 92-5 :*
The Housing position in 1939. Instalment 5 in " Housing Forum " by Monica Pidgeon.

ARCHITECTURAL DESIGN AND CONSTRUCTION, *1943 June, pp. 114— :*
Housing Forum No. 6 : includes wartime housing scheme, by A. W. Kenyon [*F.*]. Kitchens. Model kitchen, by Works Dept., Birmingham. Article on country kitchen, by E. A. Nicholls. Continuation of Hellstrand's article, Sweden : Housing standards of planning and building.

ARCHITECTS' JOURNAL, *1943 June 24, p. 420 :*
Housing problems : short report of conference of architects, builders, trade union representatives, etc., convened by Association of Building Technicians, at Beaver Hall, London, 5 June.

ARCHITECTURAL DESIGN AND CONSTRUCTION, *1943 July, pp. 134-5 :*
The future of Scottish housing. Article by Jean Mann, J.P., Vice-President Scottish Town and Country Planning Association. Also article : 20 years of housing progress in Scotland. Illustrated. Plans.

ARCHITECTURAL REVIEW, *1943 May, pp. 119-28 :*
Model houses for the labouring classes, by Nikolaus Pevsner. Documentation summary of the first 20 years of London working-class tenement building. Notes on the social and political movements which gave rise to early 19th-century housing, and the leading personalities. Illustrated plans, photos.

ARCH. DESIGN & CONSTRUCTION, *1943 May, p. 96 :*
Sweden : standards of planning and building [in housing]. Pt. I by C. Hellstrand.

ARCHITECT AND BUILDING NEWS, *1943 May 28, p. 132 :*
New Government model villages for Nigerian miners, by Thomas Scott [*F.*], Architect, P.W.D.

CALIFORNIA ARTS AND ARCHITECTURE (Los Angeles), *1943 June, p. 33 :*
Vallejo housing : highly critical article on the vast war-housing schemes at Vallejo, California, dealing particularly with lack of communal amenities of all sorts, evils hand-to-mouth " planning." Also prefabrication technique. Well illustrated, photos and drawings.

BUILDER, *1943 July 2, p. 14 :*
Housing in New Zealand : synopsis of lecture at Housing Centre, by Miss Nancy Northcroft.

BUILDING (Sydney, N.S.W.), *1942 July, p. 72 :*
Design for an average Australian worker's home, gd.-fl. 3-room apartment, 1st floor in Mansard, 2-room apartment.

BUILDING AND ENGINEERING (Sydney, N.S.W.), *1943 March 24, p. 28 :*
Housing of workers employed in Commonwealth munitions factories : bungalows for families (illus.), hostels for single workers (site plan).

TOWN AND COUNTRY PLANNING, *1943 Spring, pp. 6-9 :*
Some psychological factors in home building, by Mass Observation.

ARCHITECT AND BUILDING NEWS, *1943 June 25, pp. 193-200 :*
Unorthodox housing construction [in Britain] 1920-39 : a critical survey, by G. Fairweather [*F.*]. Describing Weir houses, 4 plan types (steel plates on timber studs). Beardmore-Atholl house (steel plates on steel stanchions). Braithwaite-Telford house (steel plates on timber frame). Scano I (vertical planking). Tarran solid cedar homes (3-in. thick planking on braced frame). All designs illustrated by isometrics of structure (except Tarran) and views of completed jobs.

COUNTRY LIFE, *1943 June 23, p. 164 :*
" Chalcrete " cottages (site-fabricated chalk-cement blocks) erected in France, 1914-18. Corr. and illus.

ARCHITECTURAL DESIGN AND CONSTRUCTION, *1943 July, p. 145 :*
Housing competition organised by Incorporated Association of Architects and Surveyors. Winning designs.

TOWN AND COUNTRY PLANNING, *1943 Spring, pp. 4-5 :*
Houses or flats : summary of various public opinion surveys, scientific and casual, all show preference for houses.

JOURNAL OF THE CHARTERED SURVEYORS' INST., *1943 May, pp. 516-22 :*
Housing : synopsis of reconstruction plans with reference to the Ministry of Health proposals for 3,000 rural cottages.

ARCHITECTS' JOURNAL, *1943 May 27, pp. 347-9 :*
Farm workers' houses : a critical survey of the proposals and building plans issued by the Ministry of Health in collaboration with the Ministry of Works for 3,000 houses.

ARCHITECT AND BUILDING NEWS, *1943 June 25, pp. 185-7 ;*
ARCHITECTS' JOURNAL, *1943 July 1, pp. 3-4 ;*
COUNTRY LIFE, *1943 July 2, pp. 18-20 :*
Rural cottages : the lesson of the failure to build the 3,000 agricultural workers' cottages promised by Ministry of Health. Editorial and notes. In COUNTRY LIFE : " Official and unofficial views." " The farm workers' own point of view."

ARCHITECT AND BUILDING NEWS, *1943 July 2 ;*
ARCHITECTS' JOURNAL, *1943 July 1, pp. 11-12 ;*
ARCHITECTURAL DESIGN AND CONSTRUCTION, *July ;*
BUILDER, *1943 June 25, pp. 555-7 ;*
ILLUSTRATED CARPENTER AND BUILDER, *1943 July 2, pp. 730-2 ; July 23 ;*
NATIONAL BUILDER, *July ;*
OFFICIAL ARCHITECT, *July :*
Agricultural cottages (wartime). Alternative types to those issued previously. Architect, A. W. Kenyon [*F.*]. Plans, working details and view. I.C. & B. articles (2nd) highly critical ; (23rd) critical note on structure by R. V. Boughton.

COUNTRY LIFE, *1943 May 14, pp. 886-7 :*
" In the Hampshire tradition." Article on Lord Portal's cottages at Freefolk ; architect A. E. T. Mort.

ARCHITECT AND BUILDING NEWS, *1943 Aug. 6 :*
Agricultural workers' cottages proposed for Dulverton, by O. Harris [*A.*], Somerset County Architect. Variant from M.O.W. plan ; thatched.

ARCHITECT AND BUILDING NEWS, *1943 July 9, pp. 20-1 :*
Cottages on Barlaston Estate for Josiah Wedgwood, Ltd., by Louis de Soissons [*F.*]. Part of scheme of 150 3-bedroom, parlour and non-parlour types. (Dittisham on p. 22, see July 23.)

JOURNAL OF INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS, *1943 May 25, pp. 397-410 ; pp. 414-20 :*
Random thoughts on post-war housing : article by " a member." Production and labour problems, siting, roads, construction, lighting. Houses of good design : lecture by B. Price Davies [*F.*].

ARCHITECTS' JOURNAL, *1943 June 24, pp. 407-8 :*
Housing : analysis of post-war demand ; editorial.

THE HOUSING AND PLANNING NEWS-BULLETIN, *1943 July, pp. 10-11 :*
The Labour Party's post-war policy, summarised by Major J. G. Martin, Secretary Nat. Housing and T.P. Council.

JOURNAL OF ROYAL ARCHITECTURAL INSTITUTE OF CANADA, *1943 May, pp. 65-9 :*
" The Art in Housing," by Joseph Hudnut, Dean of the Graduate School of Architecture, Harvard University. A critical examination of housing design and siting, with particular reference to contemporary tendencies.

FLATS

BUILDING, *1943 July, pp. 170-3 :*
Maisonettes : article by W. Segal illustrating scheme for maisonettes, and discussing planning problems, particularly access.

HOTELS ; HOSTELS

ARCHITECTURAL FORUM (N.Y.), *1943 June, pp. 61-76 :*
Statler Hotel, Washington, by Holabird & Root. Advanced luxury hotel design ; 819 rooms. Detailed description of design and planning of all departments.

NATIONAL BUILDER, *1943 May, pp. 144-8 :*
Industrial Hostels. Article on War Hostels, for which W. G. Holford [*A.*] was chief architect ; illus.

FARM BUILDINGS

JOURNAL OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA, *1943 April, pp. 55-9 :*
Chemistry : farming : building. A study of contemporary influences on farm planning and buildings, by Franklin C. Wells. Illus.

JOURNAL OF AUCTIONEERS' AND ESTATE AGENTS' INSTITUTE, *1943 June, pp. 222-30 :*
Farm buildings layout, design and construction : memorandum by Institute to Farm Buildings Committee of Ministry of Agriculture and Fisheries.

COUNTRY AND SMALL HOUSES

ARCHITECTURAL FORUM (N.Y.), *1943 April, pp. 55-65 :*
Houses : Danville, Calif., by C. W. W. Mayhew ; Croton-on-Hudson, by Pomerance & Breines. Both fresh modern designs and structures.

PENCIL POINTS, *1943 May, pp. 34-76 :*
Six recent modern houses of luxury type, medium size, all of considerable interest on account of structure, plan, design or siting. Architects, Neutra, Keck, H. H. Harris, Milliken & Bevin, Dailey, Eleanor & Kosmak.

CALIFORNIA ARTS AND ARCHITECTURE, *1943 Mar.-Apl., pp. 29-33 :*
"House of an era" at Brentwood, Cal., the latest important building by Neutra, designed as a gesture indicative of the end of the individualist era. *Also*, modern mountain-top timber house, by Gregory Ain.

ARCHITECTURAL FORUM (N.Y.), *1943 June, pp. 77-9 :*
Country house, by Walter Gropius, Framingham, Mass. Three bedrooms, with allowance for 2-bedroom extension. Plan based on square framing unit. Pine frame and weatherboarding.

ARCHITECTURAL RECORD (N.Y.), *1943 May, pp. 42-5 :*
Jan de Graaff House, by Neutra, Portland, Oregon. Spacious luxury hill-top house, post and beam const., vertical board cedar facing.

ARCHITECT AND BUILDING NEWS, *1943 June 11, p. 162 :*
The House to sell : postscript [to article by Brocklehurst in A. & B.N., 21 May], by Edwin Gunn [*A.*]. Illus.

WERK (Zürich), *1943 March, p. 95 :*
Small modern private house, Bremgarten, Aargau, by Max Bill ; light timber structure.

PENCIL POINTS, *1943 May :*
Small houses : illustrations of designs by modern architects, promoted by various American building materials firms : moral, "modern architecture is news!"

ARCHITECTURAL RECORD (N.Y.), *1943 May, pp. 48-51 :*
Small timber country house, Briarcliffe, N.Y., by Pomerance & Breines.

DOMESTIC DEPENDENCIES

TOWN AND COUNTRY PLANNING, *1943 Spring, p. 29 :*
A post-war kitchen : notes on a model kitchen designed Birmingham Public Works Department.

ARCH. DESIGN AND CONSTRUCTION, *1943 May, pp. 104-7 :*
Industrial kitchen planning : common errors. Article by A. Ballantyne.

ARCHITECT AND BUILDING NEWS, *1943 July 16, pp. 36-7 :*
Post-war kitchen: proposal for large-family municipal house, exhibited by Birmingham Public Works Dept., designed by H. J. Manzoni ; revised scheme.

ARCHITECT AND BUILDING NEWS, *1943 July 23, p. 52 ;*
ARCHITECTS' JOURNAL, *July 15, pp. 46-7 ;*
BUILDER, *July 16, p. 51 ;*
OFFICIAL ARCHITECT, *Aug. :*
School canteen kitchens ; standard Ministry of Works and Board of Education plans. Central kitchens for supply of 2,000 to 750 meals sent to schools in insulated containers, local kitchens for 350 to 75 meals. Illustrated.

DETAILS, CRAFTS, FITTINGS

PENCIL POINTS (N.Y.), *1942 Sept., p. 59 :*
Minimum window areas for houses : data sheet.

ARCHITECTURAL REVIEW, *1943 July, pp. 21— :*
"A cubist folk art" : article by John Piper on Donegal custom of painting mock quoins and stonework detail on stucco houses. Illustrated by photos and Piper drawings.

COUNTRY LIFE, *1943 June 4, pp. 1016-7 :*
Wall paintings in Berwick Church, Sussex, by Duncan Grant, Vanessa Bell and Quentin Bell, described by Clive Bell.

(*To be continued*)

Accessions to the Library

1942-43—III *(continued)*

PLANNING, RECONSTRUCTION
(Physical and Sociological)—*continued*

LONDON SCOTS SELF-GOVERNMENT COMMITTEE 71 : 3 (41.1.)
The New Scotland. 17 chapters [by Norrie Fraser and others] on Scottish reconstruction, Highland and industrial. *&c.*
7¼″. (vii) + 178 pp. n.p. (printed Glasgow). 1942.
1s. 6d. *Presented.*

TOWN AND COUNTRY PLANNING, GARDENS

71 : 3] 016
WASHINGTON : LIBRARY OF CONGRESS—LEGISLATIVE REFERENCE SERVICE
Bibliographies of the world at war :
No. X. Post-war planning and reconstruction (Apl. 1941—Mar. 1942). Selected and annotated bibliog. *&c.*
dupl. typescript. 10½″×8″. Washington. 1942.
Presented by the Library.

STAPLES AND STAPLES, *Ltd., publ.* 711
S— 'Reconstruction' digests (What people think, *cover sub-title*) :—
No. 1 :
Town and country planning as portrayed in the reports of the Barlow Commission [Royal Commission on the . . . Distribution of the Industrial Population] and the Scott [Ministry of Works and Planning, Committee on Land Utilization in Rural Areas] and Uthwatt [M. of W. & P., Expert Committee on Compensation and Betterment] committees. Being number one *&c.*
7¼″. (ii) + 98 pp. Lond. : Staples & Staples. 1942.
2s. R.

ABERCROMBIE (PATRICK) 711
Town and country planning.
2nd ed. 6½″. 256 pp. Lond., &c. : Oxford U.P. 1943.
3s. R.

TOWN PLANNING INSTITUTE
Year book. 1942-43. (No. 9.—Nov.) 1942. 2s. R.

GREAT BRITAIN : PARLIAMENT—BILLS 711 (42)
Town and country planning (interim development) bill. [Bill 26.]
pam. 9¾″. Lond. : H.M.S.O. 1943. 3d. P. (3).

BAUER (CATHERINE) Inf. file 711 (79)
Columbia Basin : test for planning. (*From* The New Republic, *journal*, 7 Sept.)
extract. 12″. 1942.
Presented by the Author.

COMEY (A. C.) *and* MCNAMARA (KATHERINE) *and others* 711 : 024.5
State and national planning. An analysis of the subject arranged with particular reference to the classification of library material. *&c.*
(Harvard Univ. : Dept. of Regional Planning, pubn., *half-title.*)
10½″. (i)+22 pp. Cambridge, Mass : Harvard U.P. 1937.
Presented by Miss McNamara.

MINISTRY OF TOWN AND COUNTRY PLANNING 711 : 354
Minister of Town and Country Planning Act, 1943. (Circular 1.)
[With list of regional planning officers.]
leaflet. 8¼″. Lond. 1943. 1d. R.
711 : 37

[UNITED STATES] : NATIONAL RESOURCES PLANNING BOARD—REGION 1, BOSTON
Education for planners.
dupl. typescript, printed cover. 11″×8½″. 1942.
Presented by the American Society of Planning Officials.

Inf. file 711 : 37 (73)
AMERICAN SOCIETY OF PLANNING OFFICIALS, *Chicago*
Memorandum. . . . Planning education—a survey of the curricula in 23 colleges and universities.
dupl. typescript. 11″×8½″. 1942. R.
A Proposal for a practical training course in planning *&c.*
dupl. typescript. 11″×8½″. 1942. R.

SILKIN (LEWIS) 711 [72.08 : 333
*The Nation's land. The case for nationalisation. (Fabian [Society] : Research series No. 70.)
pam. 8½″. Lond. : Gollancz, & Fabian Pubns. 1943. 6d.
Presented (2).

728.1 (794) box
711—112 (794)

CALIFORNIA HOUSING AND PLANNING ASSOCIATION
Proposal for research in connection with the Central valley project *&c.*
dupl. typescript. 11″×8½″. 1942.
Presented by Miss Catherine Bauer, and the Association.

NATIONAL PLANNING ASSOCIATION, *Washington* 711.3 (73)
Planning pamphlets :
No. 16. Regional resource development. By A. H. Hansen and H. S. Perloff.
pam. 7¾″. [Washington.] 1942.
Presented by the Association.
711.3—162 (42.1)

R.I.B.A. : LONDON REGIONAL RECONSTRUCTION COMMITTEE (R.I.B.A. *and* A.A.)
Interim reports : 1st. [1942.]
Not pubd. Extracts quoted in 2nd report, pp. 14 ff.
*2nd.—Greater London : towards a master plan. The second *&c.*
pam. 9½″. Lond. 1943. (2.)
Inserted : Greater London : *&c.* An exhibition *&c.*
leaflet, folded. ob. 6″×9″. 1943.

CENTRAL LANDOWNERS' ASSOCIATION, *Henley-on-Thames* 711.33
Post-war rural reconstruction problems. Views of the C.L.A. on *&c.*
pam. 8½″. Henley-on-Thames. [1943.] 1s. *Presented.*

711.4
CONFERENCE ON URBANISM, HARVARD *University*, . . . 1942
The Problem of the cities and towns.
7¾″. xi×116 pp. [Cambridge, Mass. 1942.]
Presented by Prof. Gropius.

SERT (JOSÉ LUIS) 711.4
Can our cities survive ? an ABC *&c.* based on the proposals formulated by the C.I.A.M. : International Congress for Modern Architecture : Congrès Internationaux d'Architecture Moderne.
ob. 9″×12″. xii+259 pp. Cambridge : Harvard U.P. ; Lond. : O.U.P. 1942. ($5.) R.

GROPIUS (WALTER) *&* WAGNER (MARTIN) Inf. file 711.4 : 3
Epilogue. The new city pattern for the people and by the people. (*From* Conference on Urbanism, Harvard *Univ.*, The Problem *&c.* : epilogue.)
pam. 7¾″. n.p. [1942.]
Presented by Prof. Gropius (2).

HALTON (ELIZABETH E.) 711.4—163
Unless we plan now. Our towns. (Association for Education in Citizenship. Handbooks for discussion groups, No. 4.)
pam. 6½″. Lond. : English Univs. Press. [1941 or after.]
Presented.

711.4—163 (73) + 728.1 (73)
NATIONAL PLANNING ASSOCIATION, *Washington*
Planning pamphlets :
No. 10. Urban redevelopment and housing. [By Guy Greer and A. H. Hansen.]
pam. 7¾″. [Washington.] 1941.
Presented by the Association.

BAUER (CATHERINE) Inf. file 711.4—163 (73) [72.08 : 333
Urban redevelopment : crisis in land economics *&c.* (*In* National Public Housing Conference : Public Housing Progress, ix, 1, Jan.)
pam. 11″. New York. 1943.
Presented by the Author.

HEALY (H. W.) 711.454
An Industrialist looks at planning. P— and industry. An address *&c.* (Town and Country Planning Assocn.)
pam. 7½″. Lond. [1943.] *Presented.*

WHITTICK (ARNOLD) 711.585 : 728
Civic design and the home. (Rebuilding Britain series, No. 10.)
pam. 8½″. Lond. : Faber & Faber. 1943. 1s. 6d. R.

OXFORDSHIRE : COUNTY SURVEYOR 711.7 : 656.08 (42.57)
An Investigation and report on four years' fatal accidents in Oxfordshire.
13¼″. 65 pp.+(ii) folding pls. Oxford. 1937.
Presented by Dr. H. V. Lanchester [F.].

SOUTHWORTH (JAMES G.) 712.21 (42.1) V
Vauxhall Gardens. A chapter in the social history of England.
8½″. xi + 199 pp. + front. + 9 pls. New York : Columbia U.P. ; Lond. : Oxford U.P. 1941. 18s. 6d. R.

BIBLIOGRAPHY (GENERAL)

IMPERIAL CHEMICAL INDUSTRIES : LIBRARY Inf. file 016 : 05
Periodical publications taken . . . during 1943.
dupl. typescript. 13″. [1943.] R.

MEMBERS SERVING WITH THE FORCES

THIRTY-SIXTH LIST

KILLED

COCHRANE, F. A. A. [*A.*], 2nd Lieut. R.E.
FOGARTY, OSWALD J. [*S.*], Cpl. R.E.

PRISONERS OF WAR

DAVIEL, R. F. [*S.*], Lieut. 10th Royal Hussars.
ELLIOTT, R. F. [*S.*], Gnr. R.A.
HIRSCH, J. M. [*S.*], Sigmn. R.C.S.
HOPKINS, C. E. [*A.*], 2nd Lieut. Northumberland Hussars.
MACALISTER, DONALD [*L.*], 2nd Lieut. R.E.
TURNER, F. J. W. [*A.*], L/Bdr. R.A.

UNITS AND RANKS OF SERVING MEMBERS

ADAM, W. J. [*L.*], Sgt. Pioneer Corps.
ALMROTT, A. F. [*A.*], 2nd Lieut. R.E.
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BARROWS, RALPH [*A.*], A.C. R.A.F.
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CONNER, JAMES [*A.*], Lieut. R.E.
COOKE, GRAHAM G. [*A.*], E.D.L/Sgt. R.E.
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COOPER, R. E. W. [*A.*], 2nd Lieut. R.E.
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DOOTSON, HARRY [*A.*], Pilot Officer R.A.F.V.R.
DROUGHT, A. B. [*A.*], Lieut. R.E.
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DUNTON, J. G. [*A.*], Capt. Royal Indian Army Service Corps.
ELDER, ALBERT J. [*A.*], Lieut. R.E.
EVANS, J. E. [*A.*], Capt. Dorsetshire Regt.
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FAIRLAMB, B. W. [*S.*], 2nd Lieut. R.E.

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WILLIAMS, B. R. [A.], Sgt. R.E.
WILLS, F. B. [S.], S/Sgt. R.E.
WINDLE, COLIN W. L. [A.], Lieut. R.E.
WREN, L. [L.], Major Commanding Provost Coy.
WRIGHT, JOHN B. [A.], L/Cpl. R.E.
YOUNG, L. J. [A.], Capt. R.E.

INVALIDED OUT OF THE FORCES

DICKINSON, A. D. [A.], Cpl. R.A.F.
GOULD, HAMILTON [A.], L.A.C. R.A.F.V.R.

Obituary

HERBERT JOHN HARDING [A.], A.R.C.A.

The death of H. J. Harding, which occurred after a short illness on 3 July, at Kendal, is a great loss to the teaching of architecture, not to architects, but to many hundreds of painter, sculptor and craftsmen students of the Royal College of Art, South Kensington, who came under his care during the twenty years that he taught there as Chief Instructor, and later as Deputy-Professor, in the School of Architecture. This was a work which called for unusual qualities in the teacher. He came in the days when Sir William Rothenstein was principal, and stayed on under Mr. P. H. Jowett, A.R.C.A.

Articled to Col. E. M. Bruce Vaughan, F.R.I.B.A., he was a pupil of Professor Beresford Pite, and later became his chief assistant.

When Professor Hubert Worthington succeeded Professor Pite, in 1923, Mr. Harding came as his Studio Master, and together they began an interesting series of combined designs in which a hundred students at a time worked out imaginary communities—such as Wrenworthy, Luttington-on-the-Rothy, Monte Peruzziano, Bramantino and Vitruvium. To this human and fascinating problem Harding brought a subtle and humorous mind, a fund of scholarship and a quiet enthusiasm. It was a method of teaching that gripped and stimulated all who took part in it. The system was carried on successively by Prof. W. G. Newton and Prof. A. B. Knapp-Fisher. Harding was there all the time, and provided continuity in this unusual school.

His influence, perhaps hardly realised, was great, and he will be remembered by many generations of students, and all members of the varied staff of the Royal College, with gratitude and affection.

In addition to his great work at the College of Art, he was head of the Evening Architectural Department of the L.C.C. School of Building, an appointment he held for a number of years, and which terminated for the duration of the war. Teaching is an exacting occupation when taken seriously, and it shows what an indefatigable worker he was to carry on in the Evening School after a hard day's work at the college.

Though his own architectural practice was necessarily limited by the scope of his teaching, he carried out a number of charming buildings, being particularly successful in the reconstruction and restoration of domestic work for discriminating clients. His office was in King's Bench Walk, in the Chambers Judge Jeffreys once occupied.

Amongst his executed works may be mentioned the restoration of the Manor House of Stoke D'Abernon for the late Viscount D'Abernon, P.C., Netherby Hall, for Sir Fergus Graham, Bart., and the Trinity College of Music, London, which he won in competition. He also did some hospital work, factories and hutted camps and hangars for the Naval Air Service in the last war.

He was a Royal Exhibitioner at the R.C.A. ; got honourable mention in the R.I.B.A. Essay Medal, was an examiner in architecture for the Board of Education, 1929-1934, and a member of the R.I.B.A. Board of Architectural Education, 1933-1939.

He was placed second in the open competition for the Northampton Civic Centre, and third for the Swinton and Pendlebury Civic Centre, and the Luton Town Hall. In the last war he was a Petty Officer, R.N. He leaves a widow. His loss will be felt by a host of friends whose lives were enriched by contact with his sensitive, scholarly, imaginative mind, his self-effacing modesty, his tireless industry, and his subtle sense of humour.

J. H. W.

R. S. BOWERS [F.]

Steuart Bowers was born an artist and an architect. He was a genius who combined also the capacity for deep study and hard work. Handicapped as a young man by circumstances which would have deterred many, he persevered in his studies and realised his ambition as an assistant to several well-known architects. He had a peculiar flair for cottage design and estate lay-outs, and it was in this connection that I became associated with him at the end of the last war. We carried out many housing schemes, some of which figure in most books on the subject, his treatment of a scheme at Folkestone making a favourite illustration. Town halls, convalescent homes, office premises (Transport House was a notable one) and all classes of work were carried out during our partnership of about twenty years, and every job had in it something of his distinctive touch. He was kindness itself, and having known hardship in his own youth he was always a generous helper of those in need.

E. G. C.

Notes

MINISTRY OF LABOUR AND NATIONAL SERVICE CENTRAL (TECHNICAL AND SCIENTIFIC) REGISTER

Alexandra House,
Kingsway, W.C.2

20.7.43

To the Editor, JOURNAL R.I.B.A.

DEAR SIR,—At a recent meeting of the Architecture and Public Utilities Advisory Committee to the Central (Technical and Scientific) Register, consideration was given to the case of architects for whom suitable employment in a professional capacity is not available in present circumstances.

It was suggested that some of them might be willing to undertake a course of training as mechanical engineering draughtsmen, with a view to undertaking war work in that capacity.

There is a serious shortage of these draughtsmen, and the Ministry is anxious to overcome this as speedily as possible. A leading member of the Council of the Royal Institute of British Architects has suggested that architects above military age or if of military age unfit for service, who were not at present fully employed, would respond in the national interest to an appeal of this sort.

Although we cannot say the appeal is attractive financially, it does at least provide an opportunity to architects who wish to play a direct part in this war, and it should be possible to find employment as draughtsmen for them, after training, or even to arrange the training, with an employer in or near their home town.

I enclose, therefore, a Notice which it is hoped you will be willing to insert in your Institute's Journal.

Yours faithfully,
R. BERG.

WAR DAMAGE PROFESSIONAL FEES

The War Damage Commission announces an addition to the official notice of March 2, 1942, which set out the scale of professional fees for acting in an advisory capacity in connection with the execution of works which are allowed by the Commission in claims for cost of works or temporary works.

Consideration has been given to the appropriate fee to be paid in those cases where working drawings and/or specifications have been prepared but there has been no supervision or certification of accounts by the professional adviser, either because the client did not require him to perform these latter services or because some part (or the whole) of the work for which the drawings and/or specifications were prepared has had to be abandoned, e.g., owing to further war damage, or requisition, or compulsory purchase of the property.

After consultation with, and with the concurrence of, the professional Associations concerned, the Commission has decided that the fee to be allowed should be calculated as follows :

(*a*) Where no supervision or certification is given : Two-thirds of the fee under Scale 2 (*a*) or 2 (*b*) as the case may be.

(*b*) Where all the appropriate services are rendered but part of the work is abandoned : Full-scale fee on the work done and two-thirds of the scale fee on the work abandoned.

The only limitation is that where two professional advisers render the full services between them, the aggregate fees paid will not normally exceed a single full fee on the prescribed scale.

COUNTY OF LONDON PLAN—EXHIBITION

A total of 54,732 persons visited the County of London Plan Exhibition at the County Hall.

The Exhibition will be reopened at the Royal Academy, Burlington House, Piccadilly, on 3 November 1943, for a period of one month. Further particulars will be announced in due course.

Notices

ASSOCIATES AND THE FELLOWSHIP

Associates who are eligible and desirous of transferring to the Fellowship are reminded that if they wish to take advantage of the next available election they should send the necessary nomination forms to the Secretary R.I.B.A. as soon as possible.

THE USE OF TITLES BY MEMBERS OF THE ROYAL INSTITUTE

In view of the passing of the Architects Registration Act 1938, members whose names are on the Statutory Register are advised to make use simply of the title "Chartered Architect" after the R.I.B.A. affix. The description "Registered Architect" is no longer necessary.

DISCIPLINARY ACTION

We have been requested by Mr. Arthur Edgerton Leeson, of 8 Cherry Street, Bimringham 2, to inform our readers that his expulsion from membership of the Institute, referred to in the May issue of the JOURNAL, was occasioned by his participation in his firm's business of estate agents and auctioneers, thus infringing paragraph 3 (*d*) of the Institute's Code of Professional Practice.

MEMBERS' COLUMN

Licentiate (1911) seeks an arrangement with Architects desiring the occasional services of an experienced and businesslike quantity surveyor, to assist them with specifications and the constructional side of their work. Also measuring up contracts and the surveying of sites, etc., and to assist generally. Own office and phone. On mutual terms. London and Southern England.—Box 1483, c/o Secretary, R.I.B.A.

CHANGE OF ADDRESS

Mr. S. Hodgson Doyle [A.] has changed his address to : 44 Gledhow Avenue, Gledhow, Leeds, 8. *Tel. No.* Leeds 61988.

OFFICE ACCOMMODATION

MEMBER offers an unfurnished Office to let, or part use of a furnished Office : Adelphi, W.C.2.—Write Box No. 2083, c/o Secretary, R.I.B.A.

WANTS AND OFFERS

WANTED to purchase or borrow for six months at a reasonable charge : *Town Planning in Practice* (Unwin), and *Ancient Town Planning* (Haverfield).—Reply, D. W. RICHARDSON, 30, College Road North, Liverpool 23.

WIDOW of Associate Member wishes to sell remarkably complete Reference File of articles and illustrations cut from R.I.B.A. Journal, A.J., etc., filed classified order and fully indexed, several hundred references construction, planning, etc., in own bookcase. Index sample file will be sent by post to intending purchaser. Offers wanted.—Write MRS. M. MOWBRAY, 36, Albion Road, Sutton, Surrey.

WANTED, a good set of drawing instruments.—Reply Box No. 1953, c/o Secretary, R.I.B.A.

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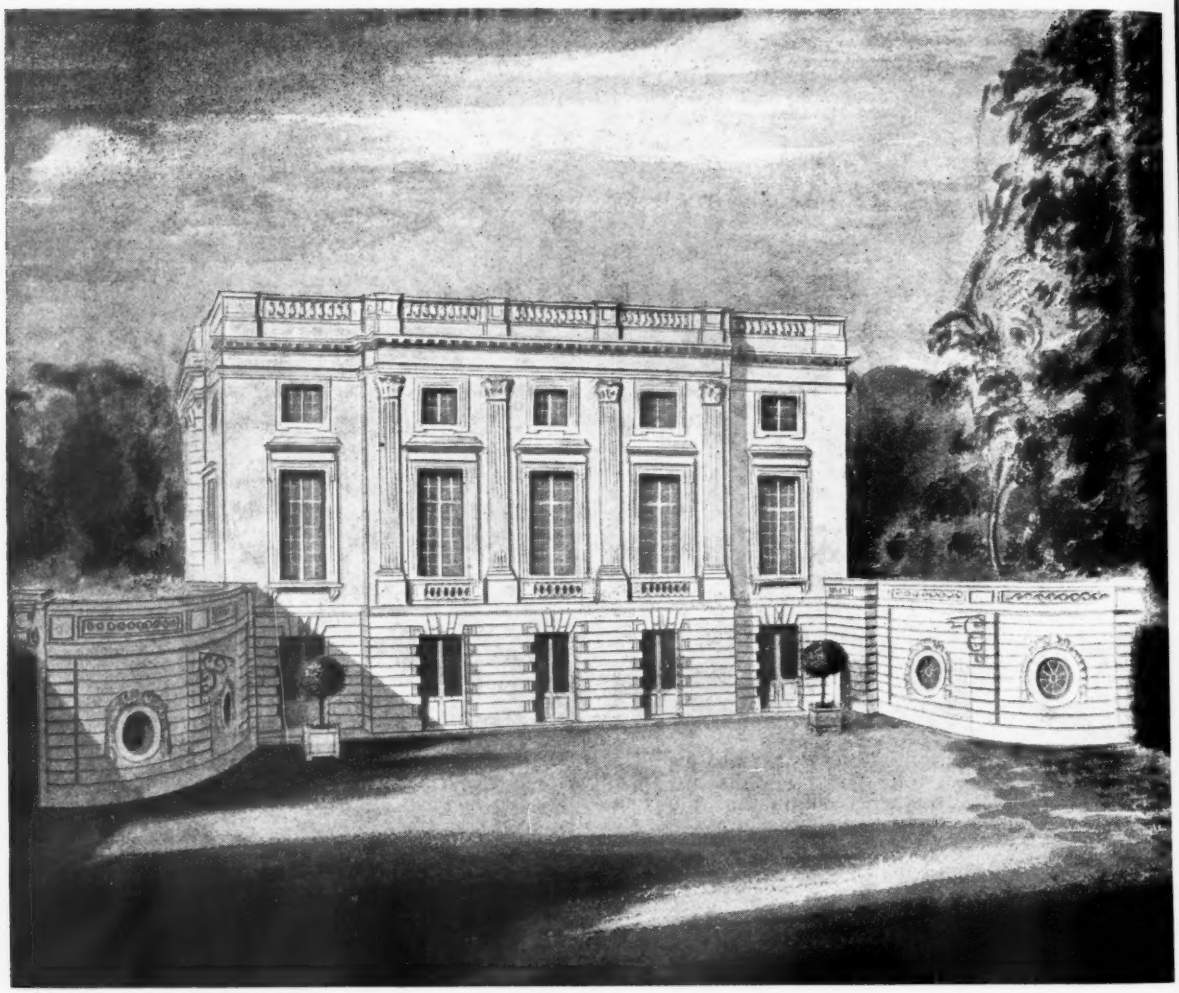

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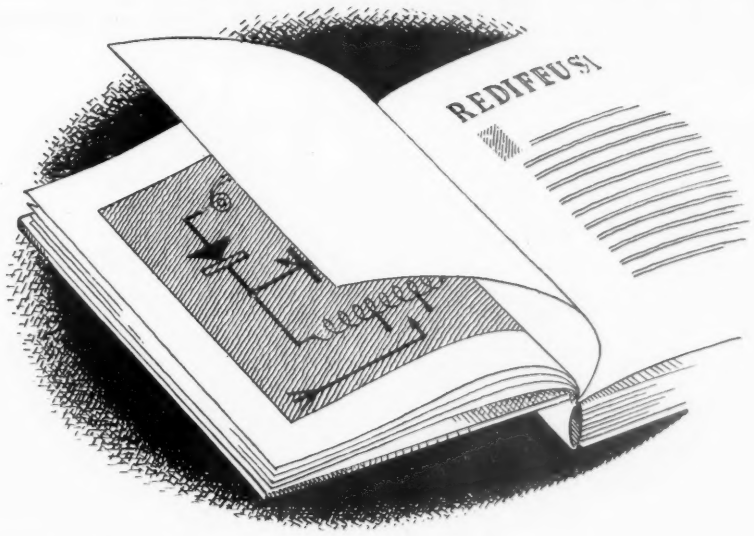

Opening of Chapter iii

25 years ago we touched with reverent fingers those curious boxes bristling with valves, coils and crystals, studded with dials and switches, linked up with dry cells and wet cells. Twice daily they would produce (if we were lucky) the magical voice of Savoy Hill in the headphones, "hello, everybody..... this is 2 L.O...."

That was wireless in the George Stevenson stage: "brutal but it worked." Then science began to simplify and streamline. Valves went out of sight; coils disappeared from view; batteries no longer cumbered the carpet; headphones became a museum piece. Tuning reduced itself to the niceties of three knobs....two knobs....*one* knob. Reception had civilised itself.

There was still a next step. The same programme still didn't necessarily sound the same way in two different towns—or even in two neighbouring houses. It was still at the mercy of local conditions and individual apparatus. It might be pretty good or terribly bad.

Wired broadcasting opens Chapter iii. Rediffusion replaces aerial and receiver by direct line reception and a switch in the wall—just like the light switch. News and entertainment of unvarying quality can be laid on at will to any subscribing home in the area—just like the telephone service. Good reception is standardised as well as good transmission.

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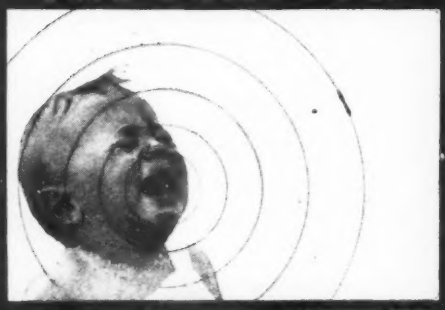
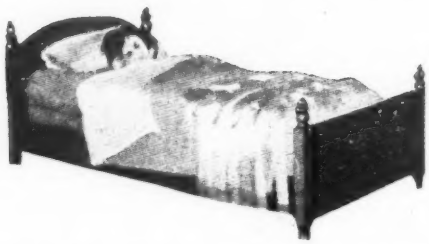


WHERE IT'S NEEDED



It is impossible here to give statistics to show how widely Wood Wool Building Slabs are being used in war building construction. The figures, if available, would be impressive and they are still expanding. Government publications show that wood wool for decking walls and ceilings of huts, hostels and factories now takes a front place in official esteem on account of its high thermal insulating quality. Perhaps it will be left to peace-time building to establish also the fact that, for sound insulation and protection against fire, vermin and fungus, Wood Wool Building Slabs have just as good a claim upon the respect of builders and architects.

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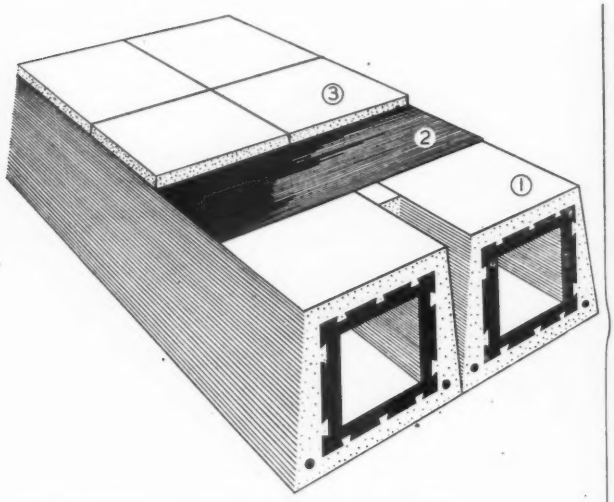

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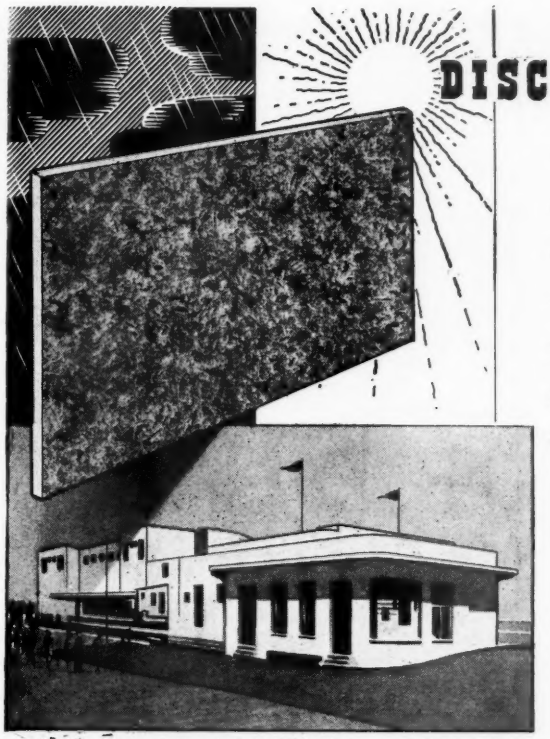

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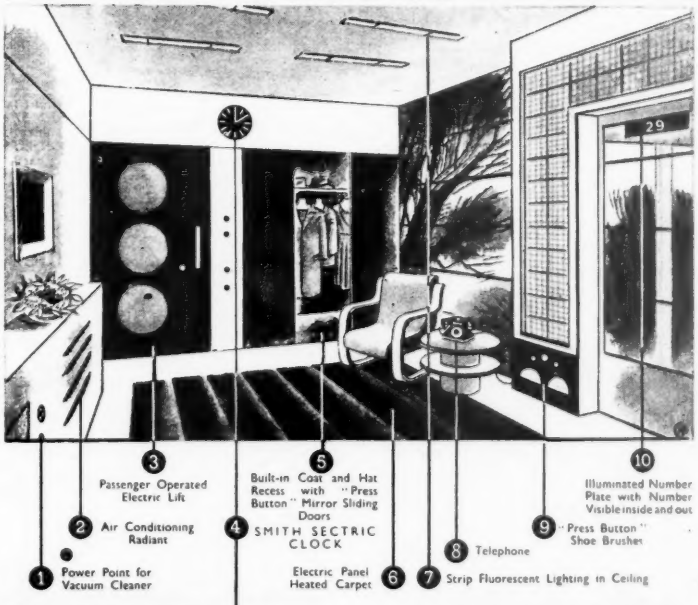
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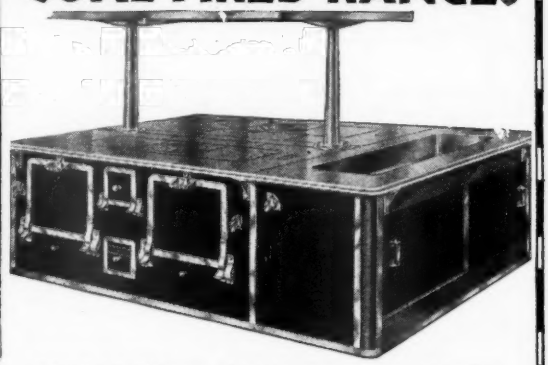
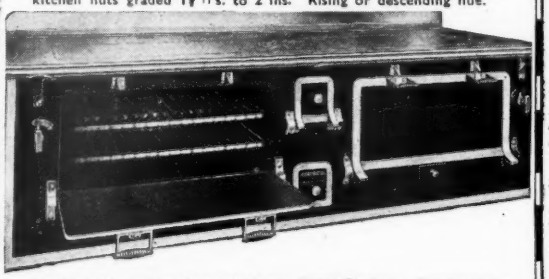


Crittall Central Range. Capacious ovens fitted with sliding steel shelves and drop-down doors. Top plate of extra heavy cast iron ground bright; moulded edge and rounded corners. Float rail on two sides. Finished in black stove enamel. Burns ordinary hard kitchen nuts graded 1½ ins. to 2 ins. Rising or descending flue.



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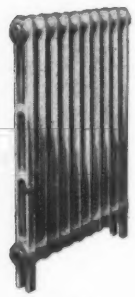

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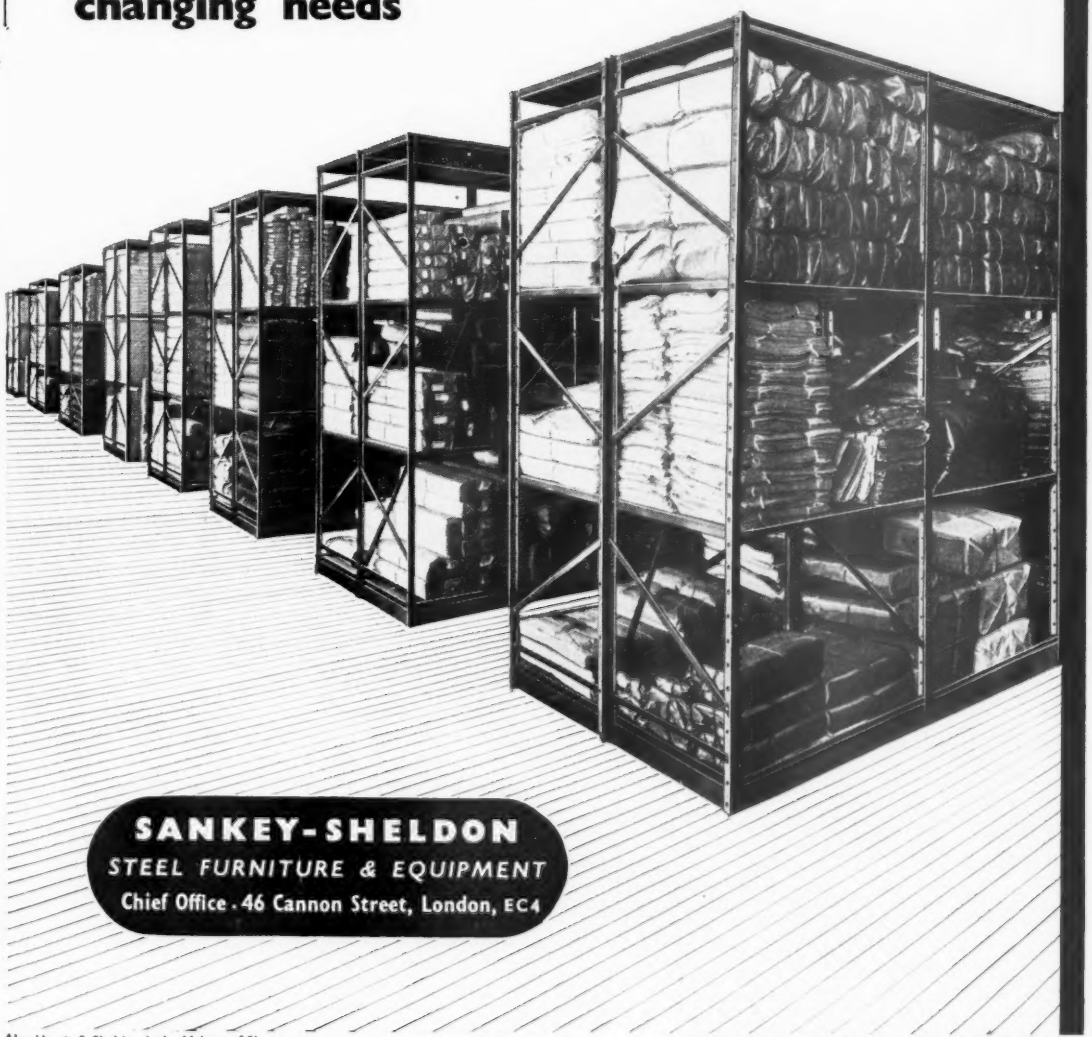

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